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Five Year Global Dataset: NMC Operational Analyses (1978 to 1982)

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Acknowledgments

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FIVE YEAR GLOBAL DATASET: NMC OPERATIONAL ANALYSES (1978 TO 1982)

DESCRIPTION

Data used in the preparation of the Five Year Global Dataset was obtained from NCAR and consisted of NMC's operational global analyses recorded on a 2.5 X 2.5 grid. Starting at Jan. 1, 1978 and ending at Dec. 31, 1982, the data set consists of twice daily analyses of SLP[1] (mb), winds(m/sec), geopotential heights(m), and temperatures(K) at 850, 700, 500, 300, 200, 100, 70, and 50 millibar levels. However, before this dataset could be made available for use, screening of all data was needed as a check on the continuity of the dataset. Also, all data had to be regridded (using bilinear interpolation) to the standard 4 X 5 degree grid. Hence, the original unpacked NCAR tapes (Appendix A) differ in both form and content from the final tapes (Appendix B), which taken together constitute the Five Year Global Dataset.

PREPARATION OF DATASET (SUMMARY)

Scanning the unpacked NCAR tapes yielded several observations concerning the continuity of the data. First, scattered over the five years were data gaps, some five days or longer, where certain fields were unavailable. Secondly, some data appeared to be discontinuous in time, demonstrating large deviations from the synoptic patterns indicated by the surrounding times.

Any field (excluding winds) determined to have such a serious discontinuity or to be otherwise unacceptable was linearly interpolated in time over the duration of the usually short suspicious period (more details concerning the identification of unacceptable or discontinuous fields are given below). Gaps of missing data that extended five days or less were also replaced with linearly interpolated data; however, longer gaps were filled in with seasonal averages (taken over all five years) or values for the same date from the GLAS[2] Analysis.

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[1] Sea level pressure is available starting at July 20, 1978 12z.

[2] Data obtained from the Goddard Laboratory for Atmospheric Sciences (GLAS) consists of a control analysis which was run using conventional data only. Satellite data during this period was not available. Caution should be exercised when considering this data; especially in the Southern Hemisphere where the absence of satellite data along with conventional data sparsity give rise to a deficient analysis (see W. Baker,D. Edelmann,M. Iredell,D. Han and S. Jakkempudi; Objective Analysis of Observational Data from the FGGE Observing Systems: NASA Technical Memorandum 82062).

Winds were replaced with geostrophic winds based on corrected heights for all times that the heights were corrected plus additional times when it was determined that the winds (but not the heights) were discontinuous or unacceptable. GLAS Analysis data were used to fill in long gaps when available.

In order to preserve the meteorological dependence between all quantities and all levels, heights and temperatures were corrected for the same times at all levels, except at the 100 mb. level, where additional times were corrected. Winds remained consistent with the heights through the property of geostrophy. Sea level pressure was corrected independently. A list of all corrected data can be found in Appendix C.

After examining the 50 and 70 mb. levels for heights, temperatures, and winds, it was determined that due to the presence of inexplicable, abrupt, and highly non-meteorological changes over time in all three fields, these two levels would be eliminated from the final dataset. Tapes containing the original unpacked data at these levels are available (see Appendix A). However, some knowledge of stratospheric behavior along with a little caution should be exercised when using this data. For additional information concerning the scanning - correction process for the entire dataset, see the sections following.

CORRECTION OF HEIGHTS, TEMPERATURES, AND SEA LEVEL PRESSURE

The correction process for these three quantities was based on the calculation of a mean sum of squares (MSS) statistic given by:

$$MSS = \left(\sum_{n=1}^{N} Q_n^2 \right) / N$$

where Q_n represents the 12 or 24 hour time difference for the nth. grid point. MSS values were calculated for 12 and 24 hr. time differences for each quantity, each level, and each hemisphere separately. Once calculated, plots of MSS vs. time were made month by month for the entire five years. Each monthly MSS plot was scaled according to the maximum seasonal MSS value based on all five years. This enabled relatively large MSS values to be easily spotted.

Once a list of times demonstrating large MSS values had been compiled, plots of the field being examined were produced for the duration of the period in question. Suspicious data could then be examined. For heights, temperatures, and SLP, the majority of data determined to be discontinuous or otherwise unacceptable demonstrated one of two attributes:

1. large perturbations suddenly arose with no apparent indication of their origin and would subsequently disappear (see figures 1a thru 1d);

2. unqualified changes in an entire field would suddenly appear for one or more days, giving rise to a very noisy field (see figures 2a thru 2d).

It is speculated that the source of these deviations stems from either the NMC Analysis procedure itself, or from the influence of the NMC model forecast through the "first guess" fields. An observation worth noting concerns a sudden increase in the MSS time differences starting in September of 1978 and ending in June of 1980. During this period, the level of day-to-day variability was higher than during other periods at the 100, 70, and 50 mb. levels (both hemispheres - see fig. 3) for heights and temperatures (winds also demonstrate this variability - see section on wind correction). The abrupt beginning and end to this phenomena suggests that it was caused by changes in the Analysis/Forecast system. Data during this time period was not discarded unless some other deviation or discontinuity was discovered.

Based on the rough criteria set forth for determining unacceptable data, a list of times for data to be replaced was created. Linear interpolation in time was then performed globally over all such times and used as a replacement. Gaps of missing data extending five days or less were also replaced with linear interpolation. With the completion of this step, only longer gaps of missing data remained to be corrected.

Missing data extending longer than five days was resolved by filling the gaps with either the seasonal climatology or GLAS Analysis data. In both cases, linear interpolation was performed for two days both toward and away from the inserted data to ensure a smooth transition in time. Climatic values consist of seasonal averages based on all five years in the dataset, excluding those times determined to be unacceptable. If any of the gaps were between seasons, the ending month of the gap determined the seasonal average to be inserted. Climatology was only used when no other data was available as a substitute.

As a way of maintaining the meteorological relationship between these quantities, heights and temperatures were corrected for the same times at all levels, except at the 100mb. level where additional times may have been corrected (also, see section on wind correction). Sea level pressure, on the other hand, was corrected independently since this quantity demonstrated less discontinuity than height and temperature data.

CORRECTION OF WIND DATA

The correction process for winds was based on a latitudinally weighted mean sum of squares (MSS) statistic given by:

$$MSS = \left(\sum_{n=1}^{N} [(U_n^2 + V_n^2) \times COS(XLAT)] \right)/N$$

where U_n and V_n represent the differenced wind components and XLAT is the absolute value of the latitude (in radians) for grid point n. The "Cosine" term is a weighting factor which serves to reduce differences at higher latitudes since the number of grid points differenced over a fixed area increases with latitude.

MSS values were calculated for two quantities. The first quantity consisted of 12 and 24 hour time differences (U_n and V_n are the 12 or 24 hour differences for the nth. grid point) which revealed information about the continuity of the wind field. As an additional check, MSS values were also calculated for differences between the analyzed winds and geostrophic winds (U_n and V_n are the analyzed minus the geostrophic wind components for the nth. grid point). Together with some meteorological knowledge, this latter calculation was used to indicate the consistency between the heights and the winds, especially in situations where the 12 and 24 hour time differences revealed inconclusive evidence about the continuity of the field. Once calculated, plots of both MSS statistics were made month by month for the entire five years for each level, each quantity, and each hemisphere separately. Each monthly MSS plot was scaled according to the maximum seasonal MSS value based on all five years.

Using both statistical calculations as a guide, large MSS values were singled out and plots of the corresponding wind and height fields were produced. For winds, several attributes warrented labeling the data as unacceptable:

1. winds suddenly became extremely ageostrophic (see figures 4a thru 4d);

2. unrealistic winds would arise over a particular region (see figures 5a thru 5d);

3. winds could be observed to be rotating against the expected flow dictated by the synoptic situation (see fig. 6).

The source of these deviations is again likely to be found in the NMC Analysis/Forecast system. Evidence of perhaps more significant changes to the NMC Analysis scheme can be observed starting in September of 1978 and ending in June of 1980. During this period, a high level of day-to-day variability can be observed at the 100, 70 and 50mb. levels for all quantities (see section on correction of heights, temps., and SLP). In addition, the ageostrophic component of the wind also increases during the same period for all levels (see fig. 3). Despite these changes, data during this time period was not discarded unless some other deviation was discovered.

The correction process for winds involved replacing unacceptable data with geostrophic winds based on corrected heights. In some instances where no link could be established between large MSS values (analyzed minus geostrophic) and the corresponding wind field, heights were re-examined and replaced if necessary (see section on correction of heights). Winds were replaced for all times that the heights were replaced plus additional times determined to be unacceptable. Each level was corrected for the same times, except at the 100mb. level, where additional correction was necessary.

Gaps in wind data were also replaced with geostrophic winds based on corrected heights; however GLAS data was used when available. Since the data gaps for both winds and heights were identical, consistency between these two quantities was maintained[3] .Essentially, the meteorological relationship between heights and winds is preserved through the property of geostrophy.

Geostrophic winds used in the correction process were calculated using two point finite differencing. At the poles, geostrophic winds were calculated by taking an average over all longitude points at the latitude just preceeding the North or South Pole, the average being performed in a Cartesian coordinate system on a plane tangent to the poles. In addition, the Coriolis parameter was fixed near the equator so that it retained the value that it had at +10 degrees (NH) or -10 degrees (SH). This eliminated the problem of low level noise in the tropical height field being translated into extremely high level noise in the geostrophic wind field due to the vanishing of the Coriolis parameter at the equator.

FINAL REMARKS

It is important to realize that the correction process implemented in the preparation of this dataset represents a highly subjective process. However, with the exception of data at the 100, 70, and 50mb. levels, the determination of unacceptable data was performed with little uncertainty. Final tapes contain information concerning the origin of all data for each time.

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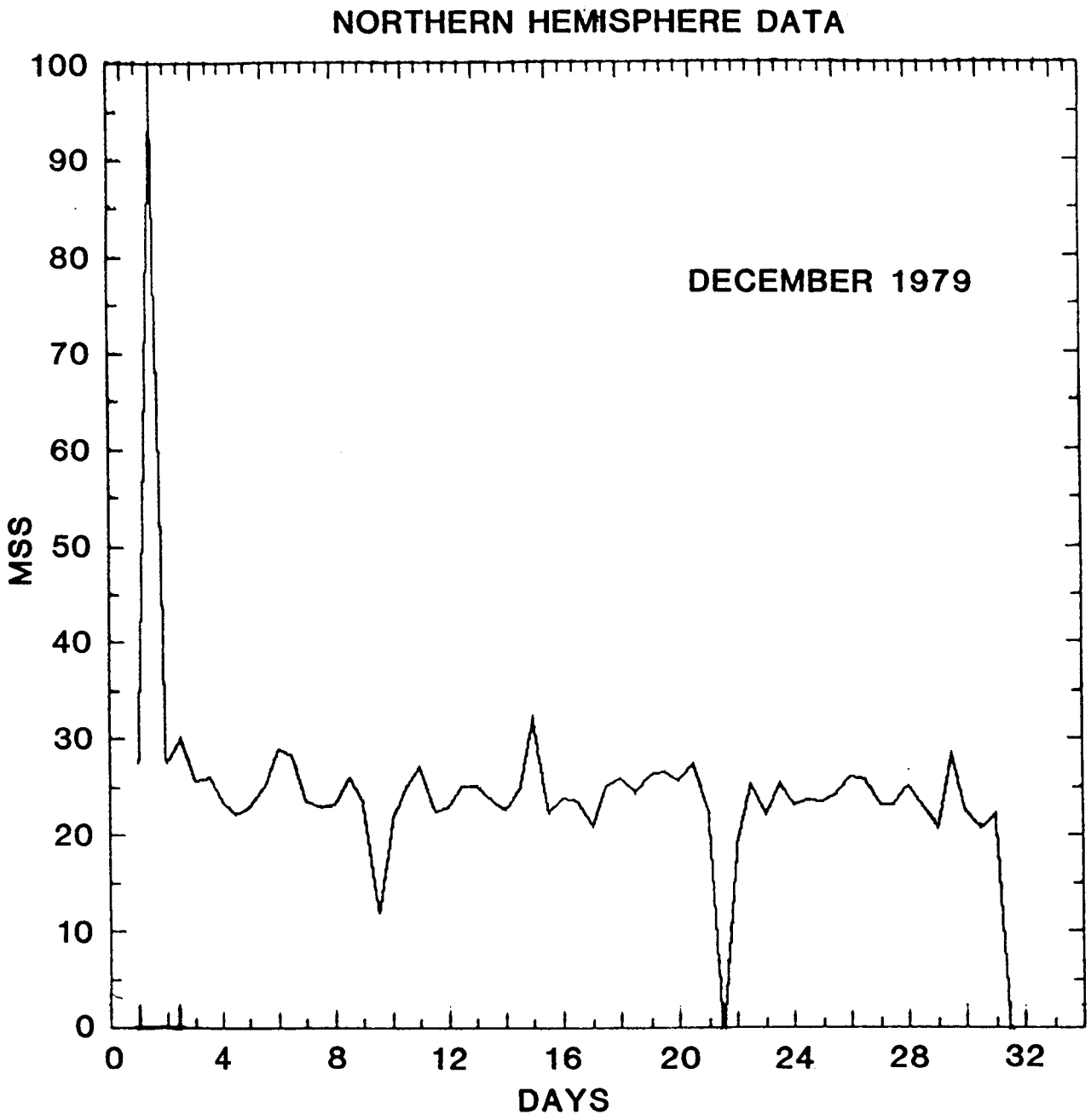
[3] Since gaps in height data may have been replaced with seasonal climatology, some geostrophic winds are based on climate data.



MSS Values For 850 mb. Ageostrophic Wind Components For Dec. 1979

\+ Indicates Larger Value
* Indicates Interpolated Heights

Figure - 1a: Weighted mean sum of squares for ageostrophic wind components - these MSS calculations were used as means for identifying ageostrophic winds which may result from a perturbation in the height or wind field (see section on correction of winds). In this case, large MSS values indicate that heights and winds at the 850 mb. level do not agree on 12/1/79 12z.

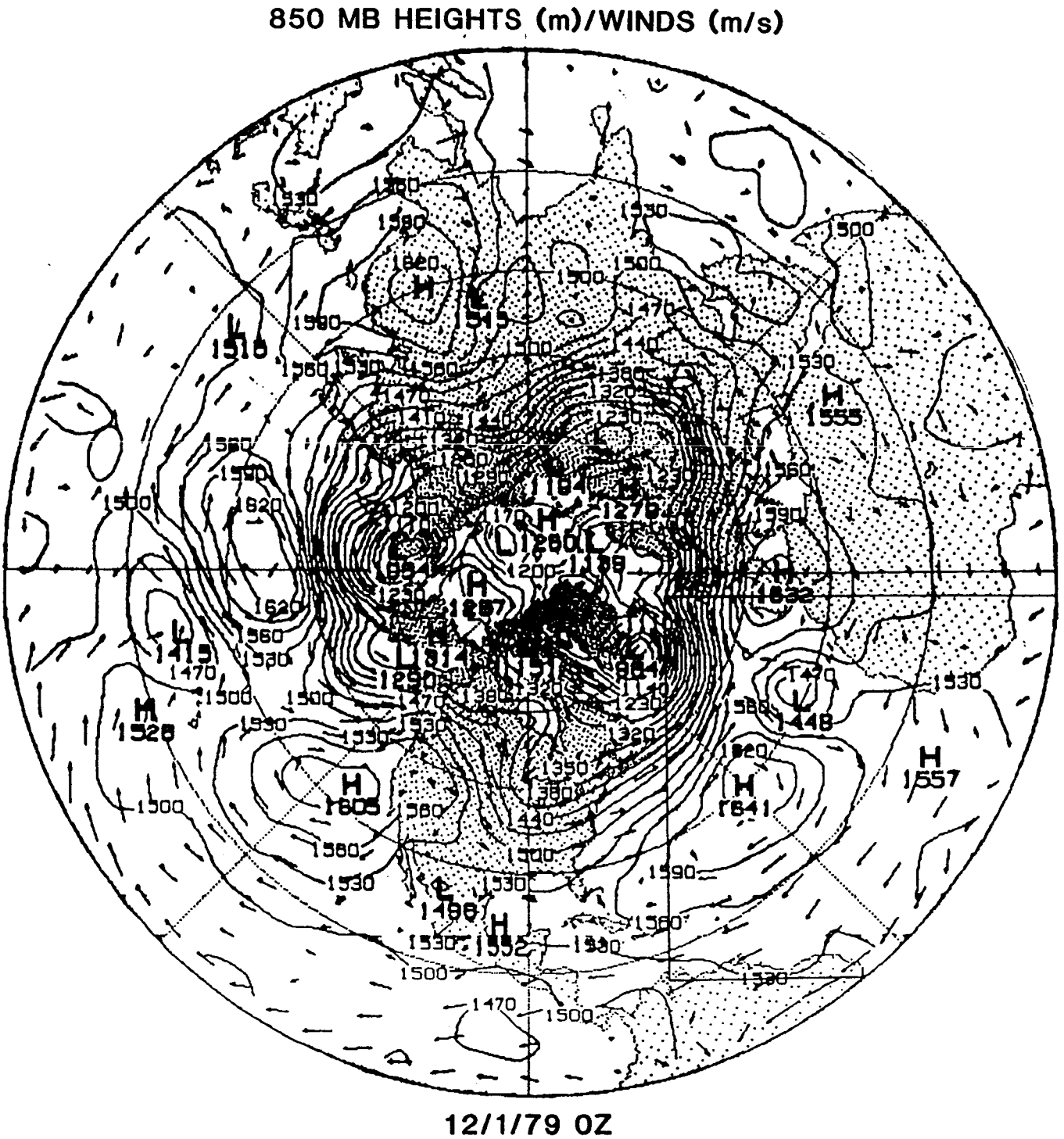


Figure - 1b: 850 mb. heights and wind vectors for 12/1/79 0Z demonstrating synoptic situation 12 hrs. before the occurrence of a large perturbation in the height field (boxed in region).

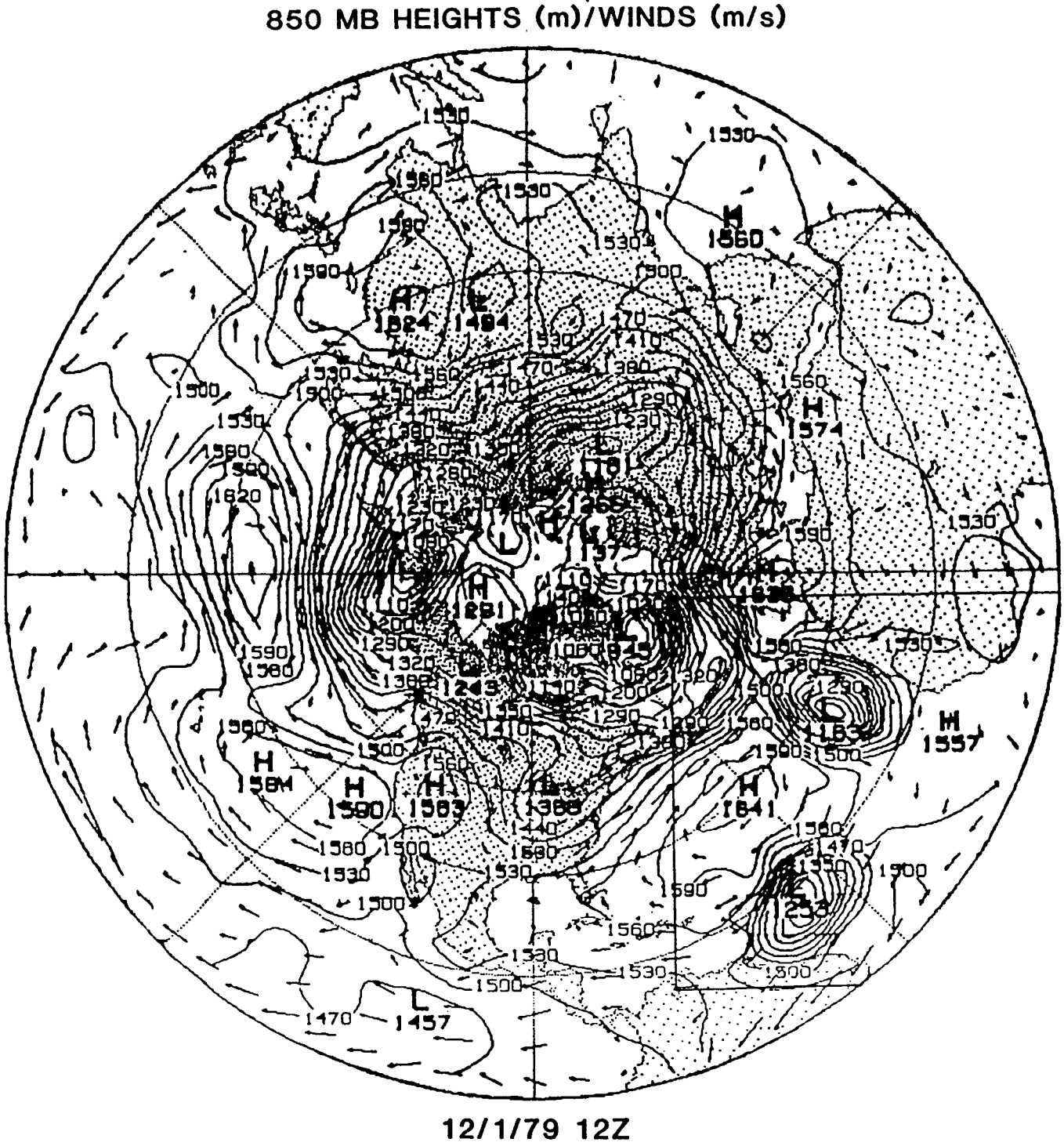


Figure - 1c: 850 mb. heights and wind vectors for 12/1/79 12Z demonstrating a large perturbation in the height field (boxed in region).

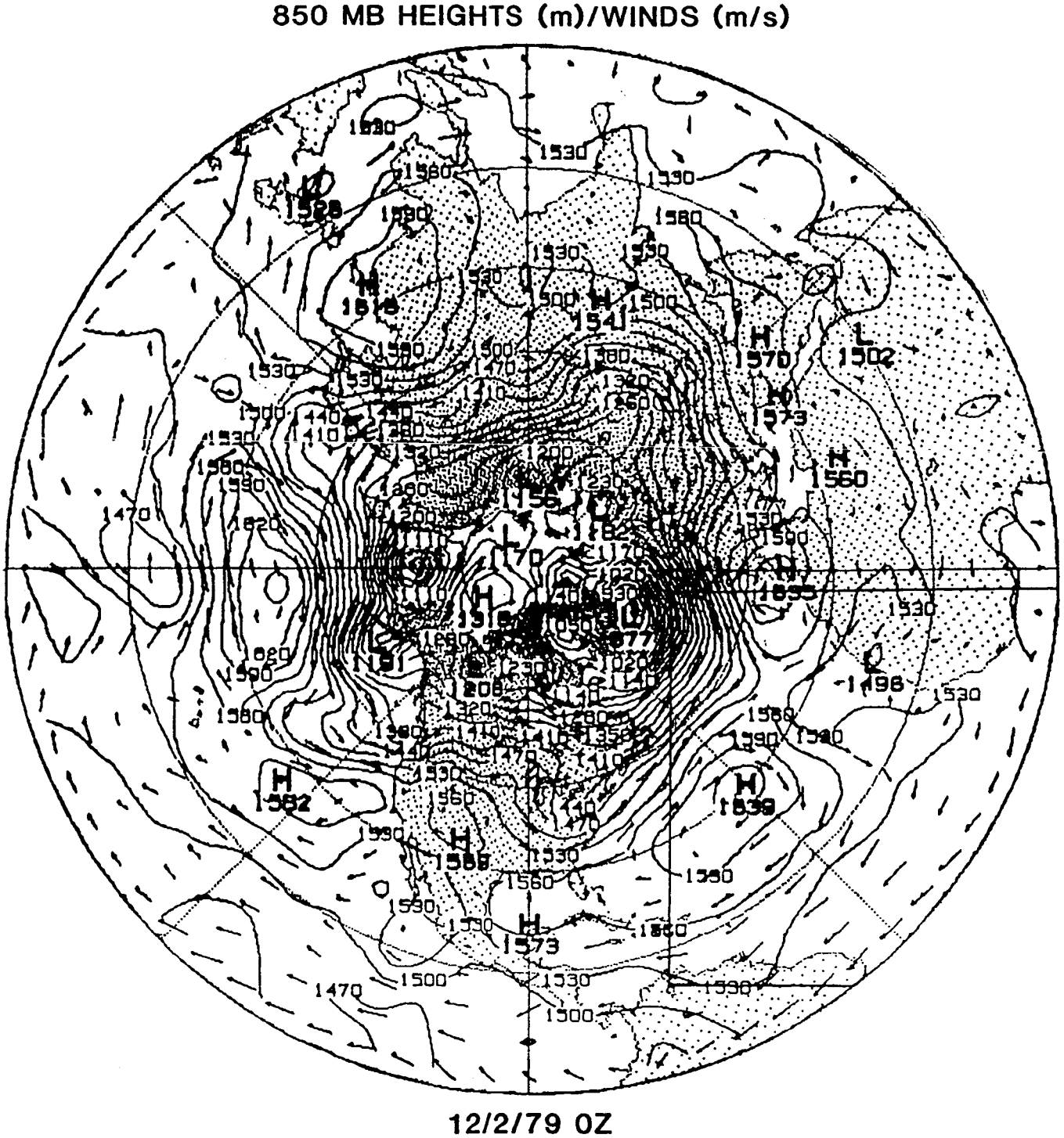
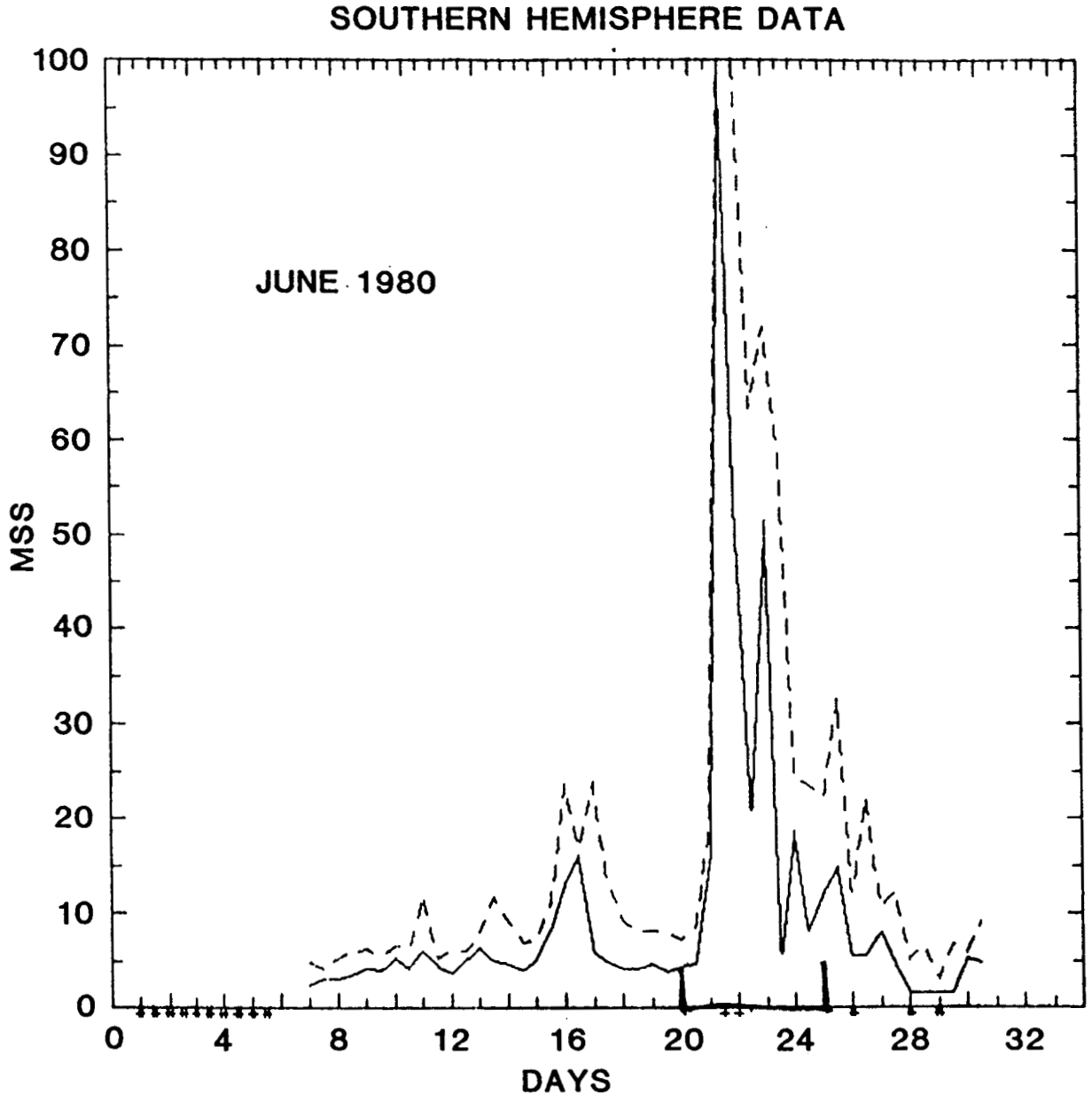


Figure - 1d: 850 mb. heights and wind vectors for 12/2/79 0Z demonstrating synoptic situation 12 hrs. after the occurrence of a large perturbation in the height field (boxed in region).



MSS Values For 200 mb. Temperatures For June 1980

\+ Indicates Larger Value
* Indicates Interpolated Time

_____ 12-Hour Difference
------- 24-Hour Difference

Figure - 2a: Mean sum of squares time differences for temperatures at the 200 mb. level (SH.) for June of 1980 indicating that the temperature field is rapidly changing (noisy) on and around 6/21/80 12Z.

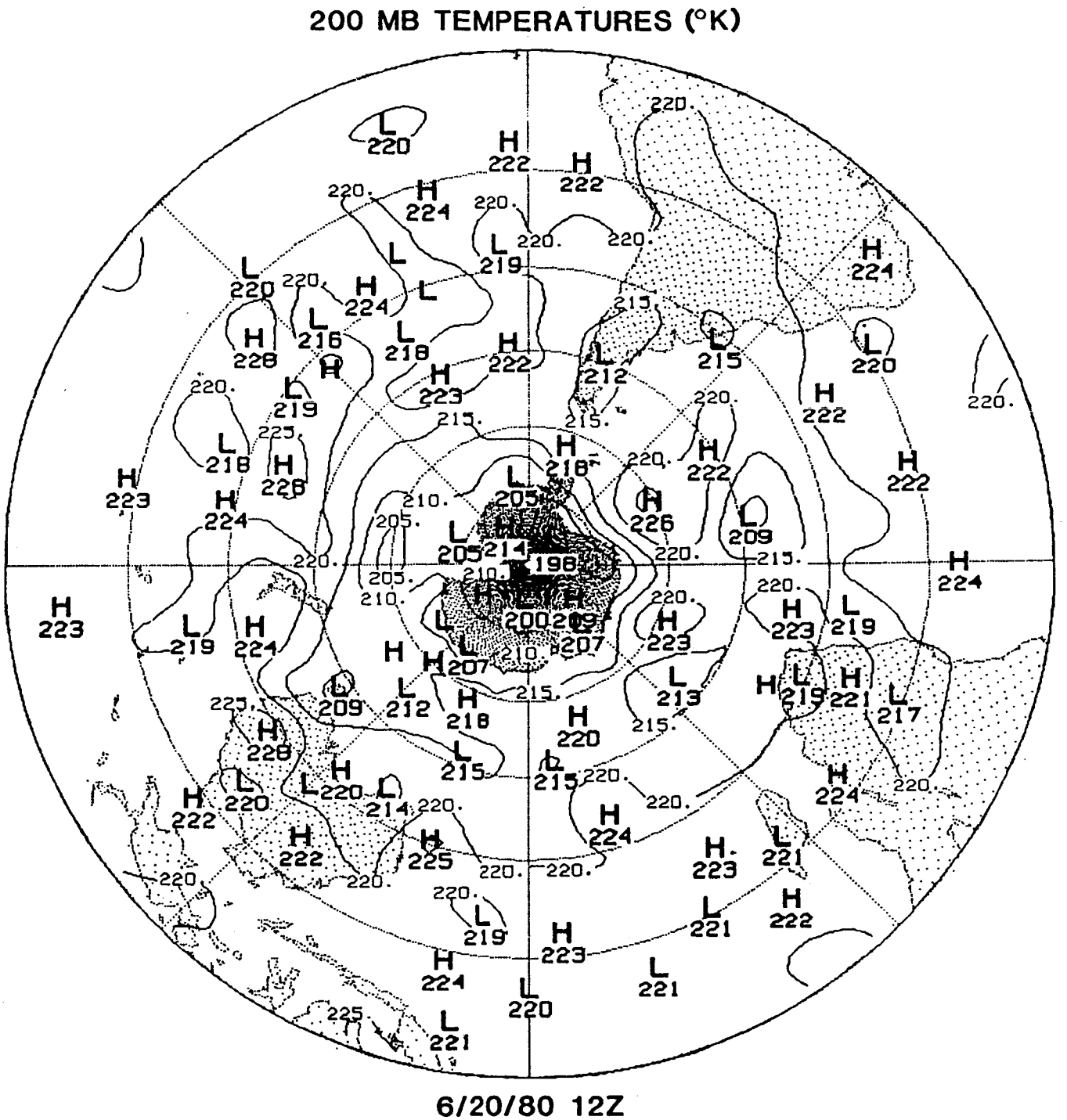


Figure - 2b: 200 mb. temperatures for 6/20/80 12Z demonstrating synoptic situation 24 hrs. before rapid changes create a "noisy" temperature field near the pole.

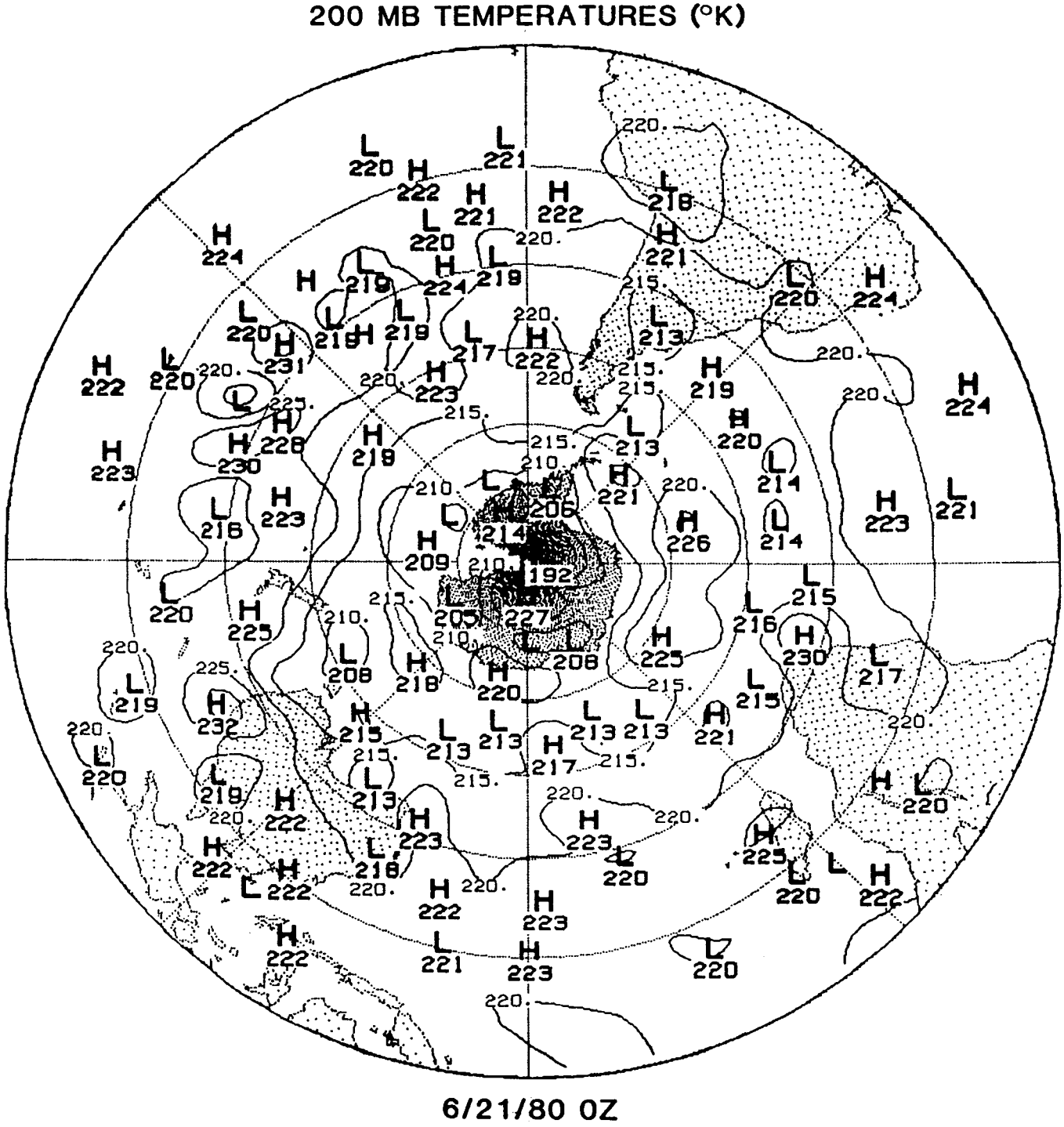


Figure - 2c: 200 mb. temperatures for 6/21/80 0Z demonstrating synoptic situation 12 hrs. before rapid changes create a "noisy" temperature field near the pole.

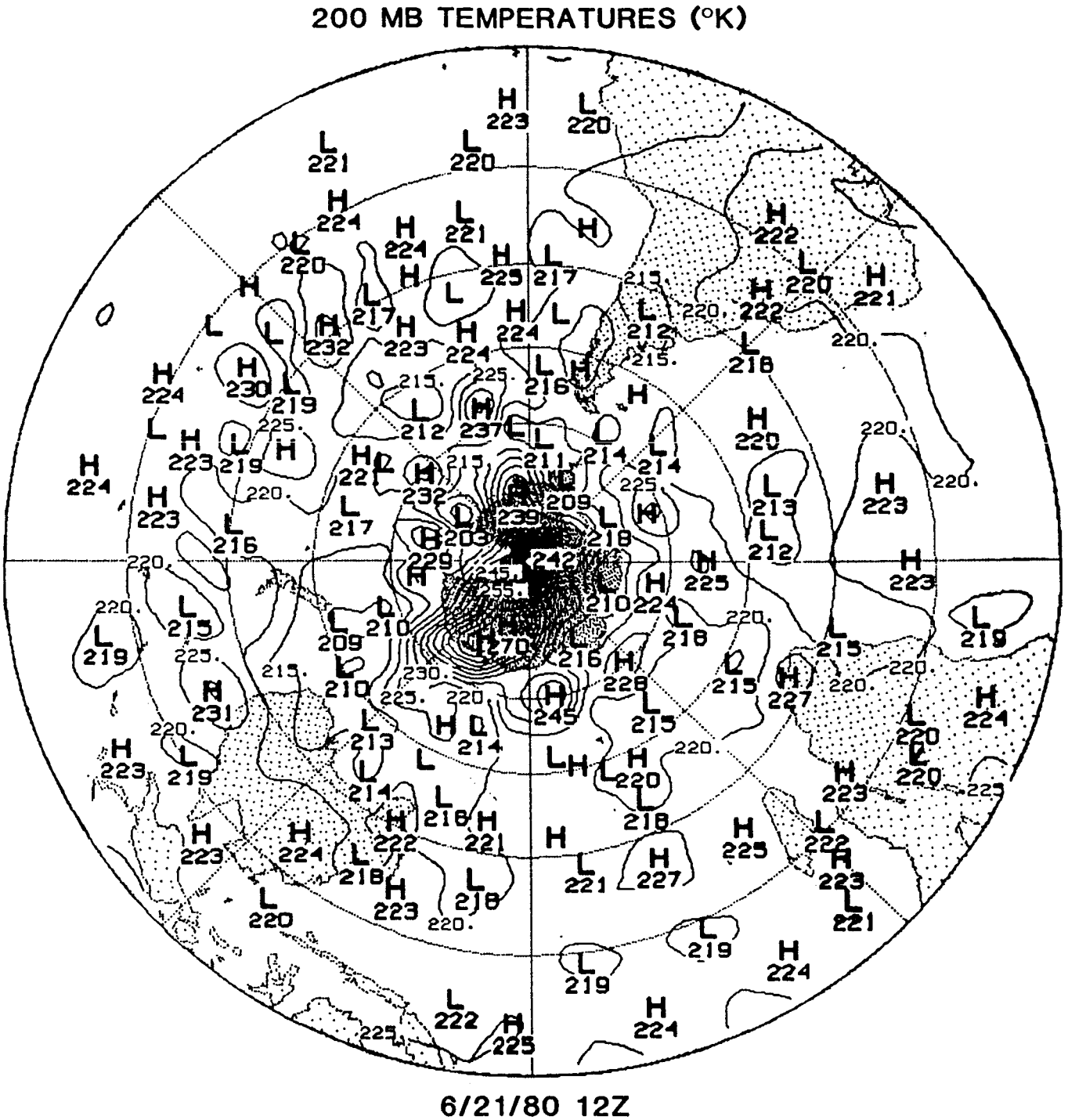
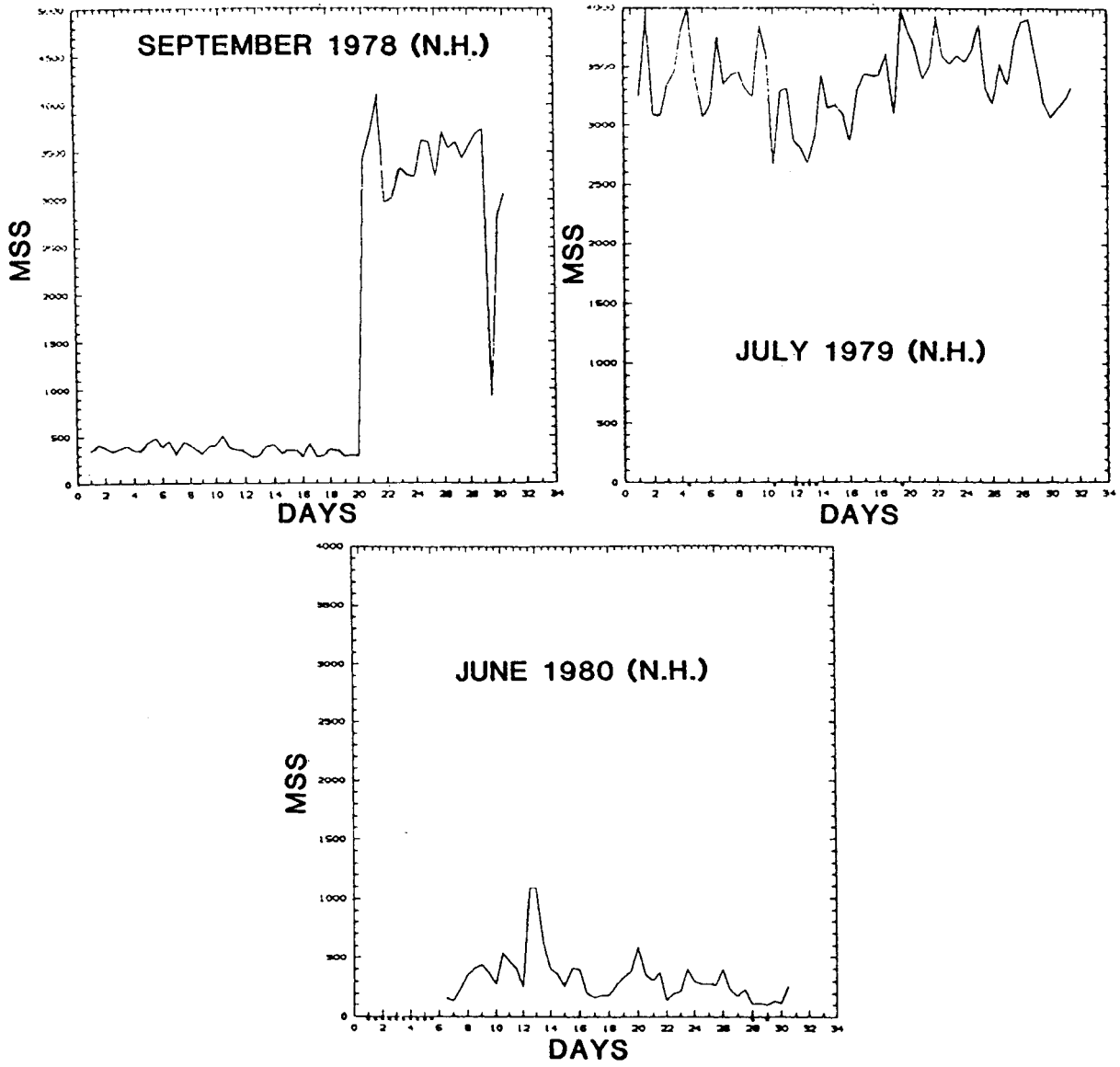
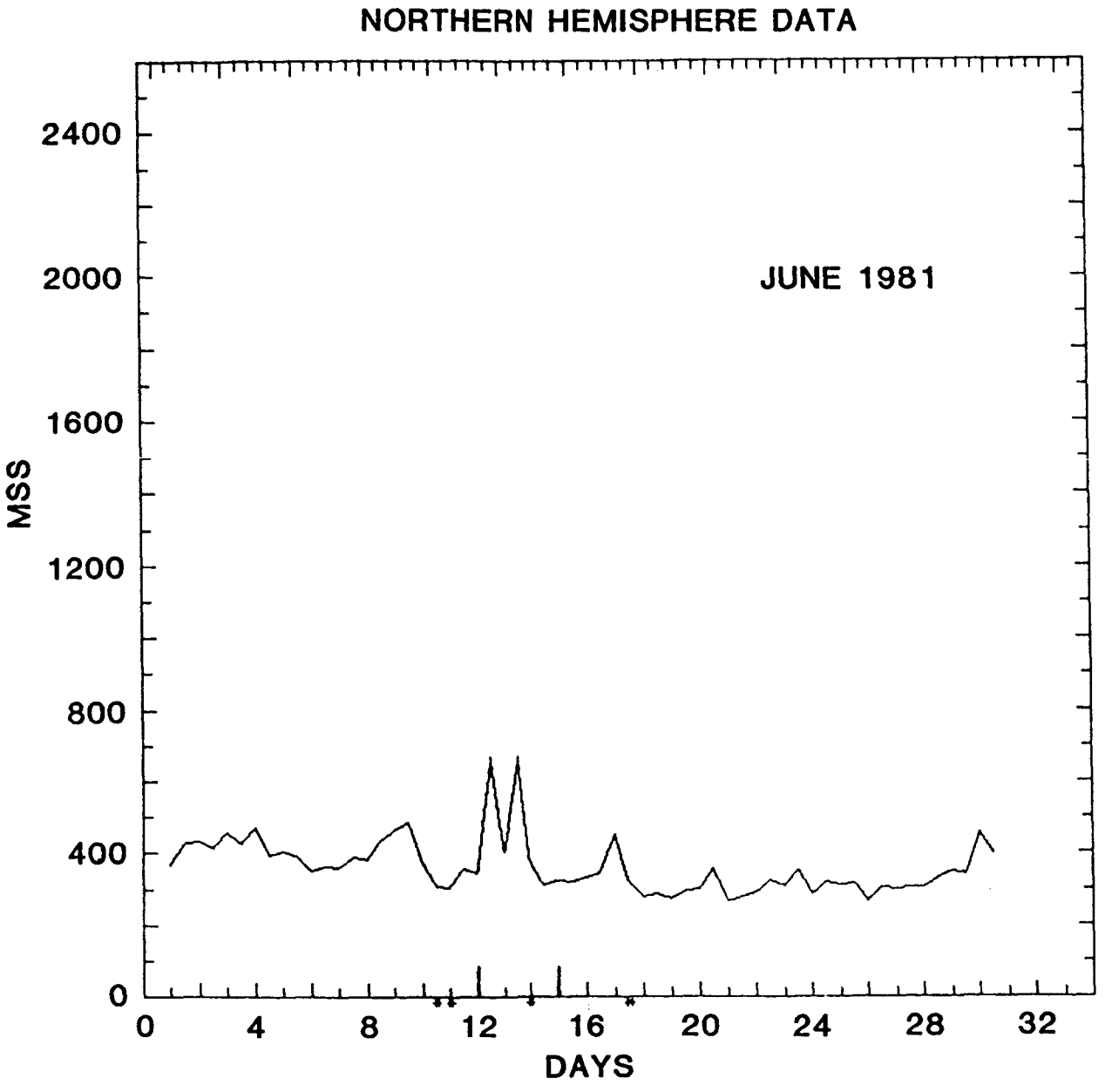


Figure - 2d: 200 mb. temperatures for 6/21/80 12Z demonstrating a noisy temperature field near the pole with respect to preceeding times (figures 2b and 2c).



+ Indicates Larger Value
* Indicates Interp. Heights

Figure - 3: Weighted mean sum of squares for the ageostrophic wind components (see section on correction of winds for an explanation of these MSS values) at the 70 mb. level indicating that perhaps a change to the analysis scheme had been made starting in Sept. of 1978 and ending in June of 1980.



MSS Values For 200 mb. Ageostrophic Wind Components For June 1981

\+ Indicates Larger Value
* Indicates Interpolated Heights

Figure - 4a: Weighted mean sum of squares for ageostrophic wind components at the 200 mb. level indicating that winds are highly ageostrophic on 6/12/81 12Z (also 6/13/81 12Z) relative to surrounding times.

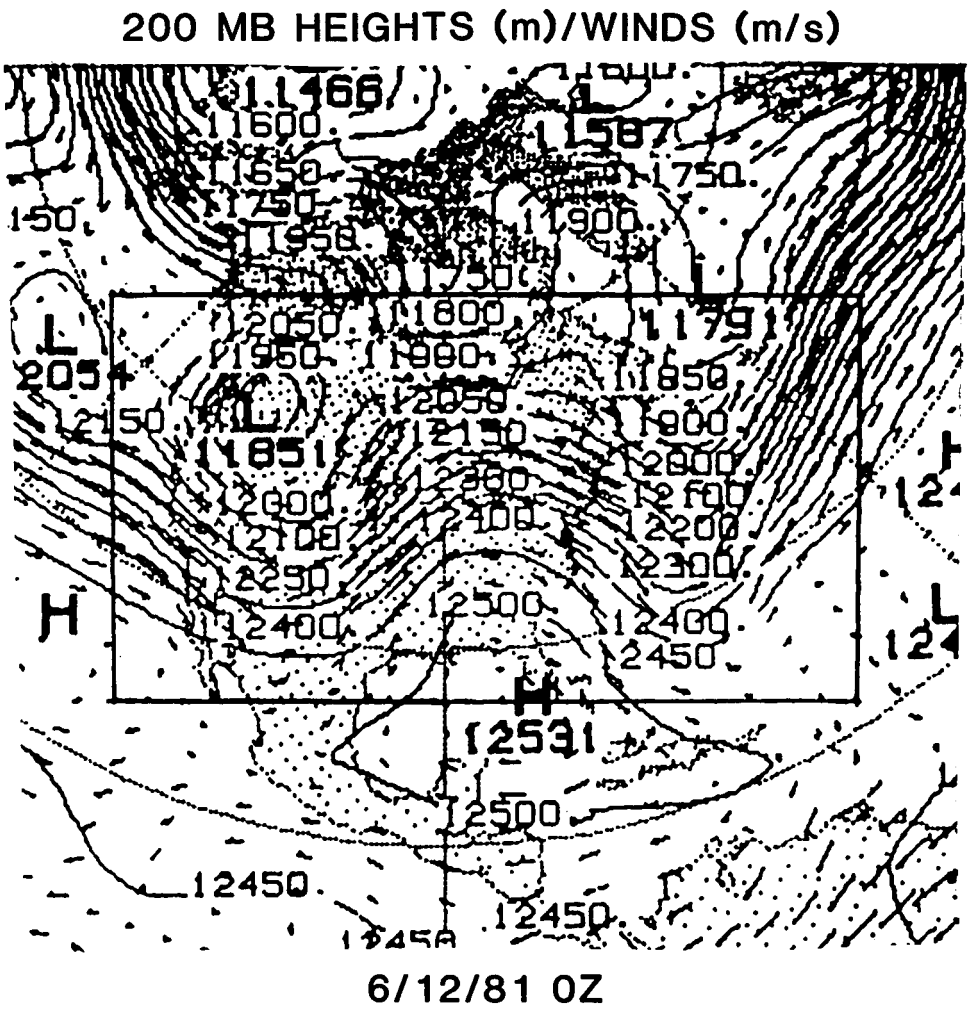


Figure - 4b: 200 mb. heights and wind vectors for 6/12/81 0Z demonstrating the synoptic situation 12 hrs. before the occurrence of highly ageostrophic winds (boxed in region).

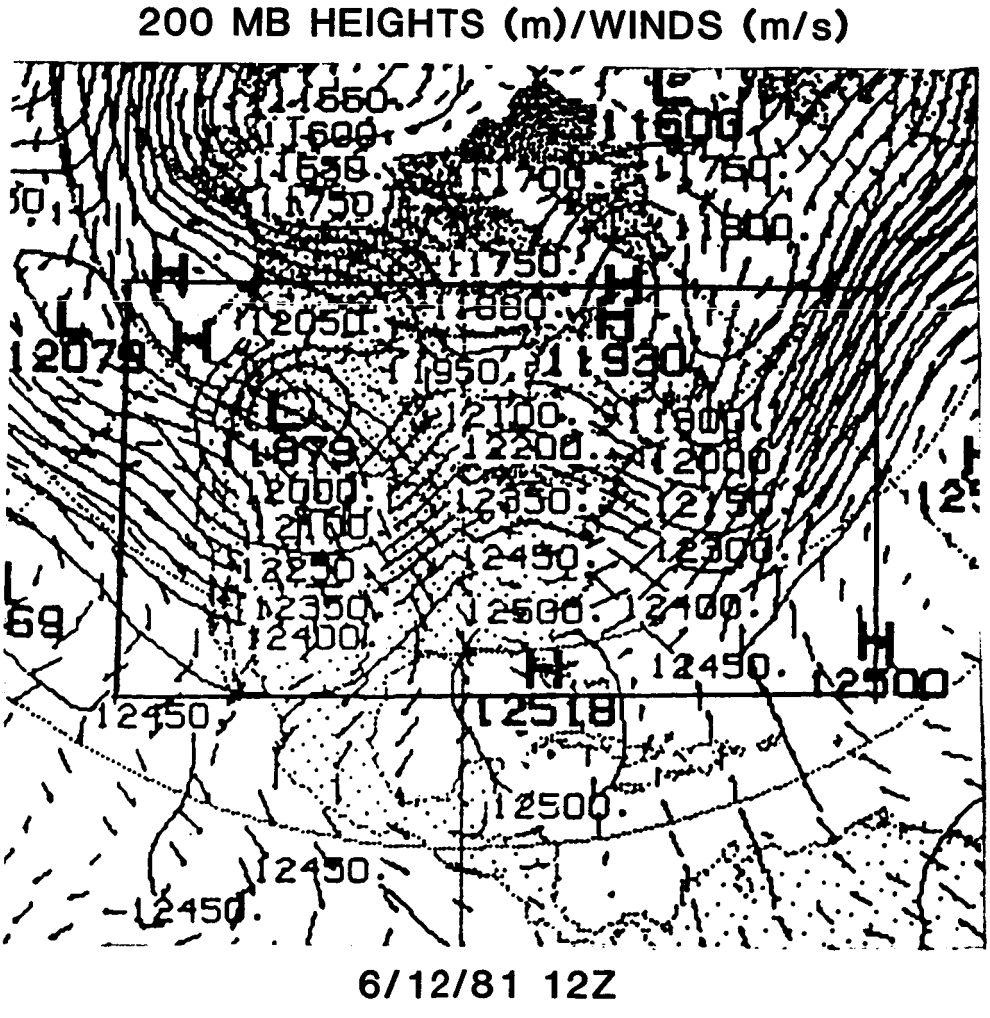


Figure - 4c: 200 mb. heights and wind vectors for 6/12/81 12Z demonstrating highly ageostrophic winds (boxed in region).

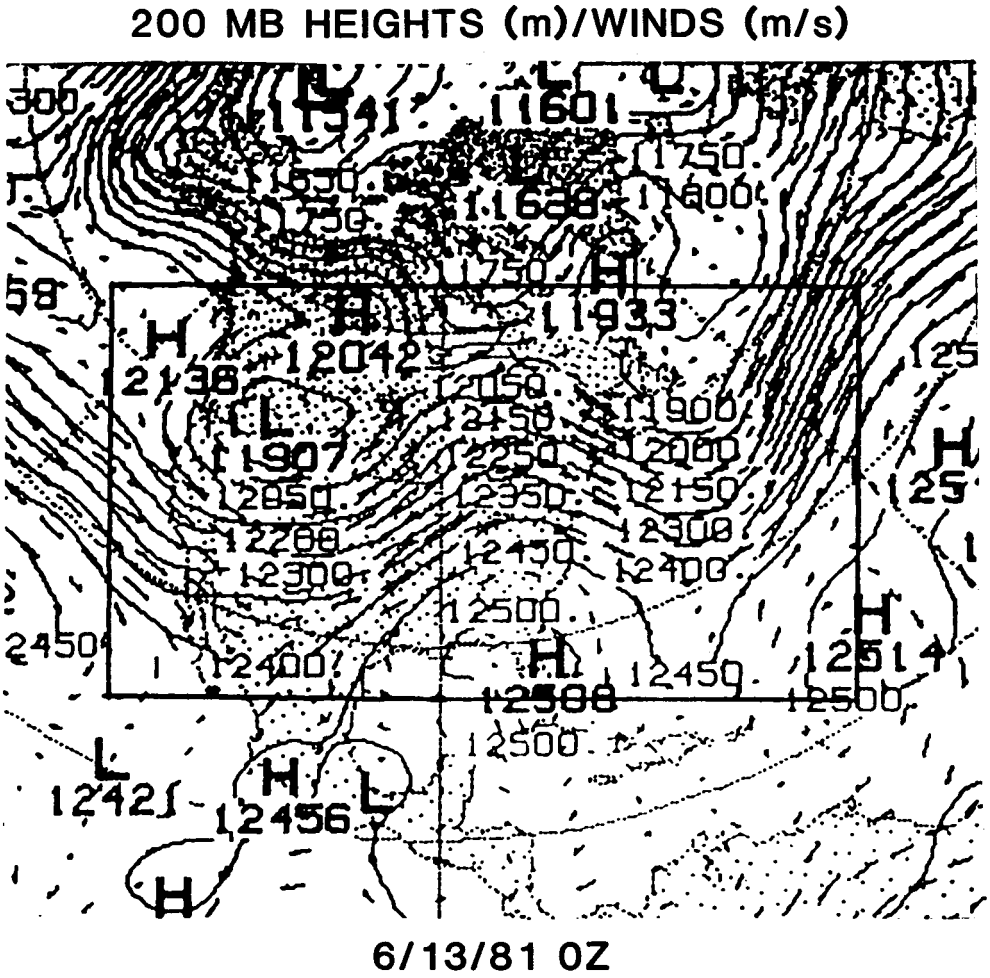
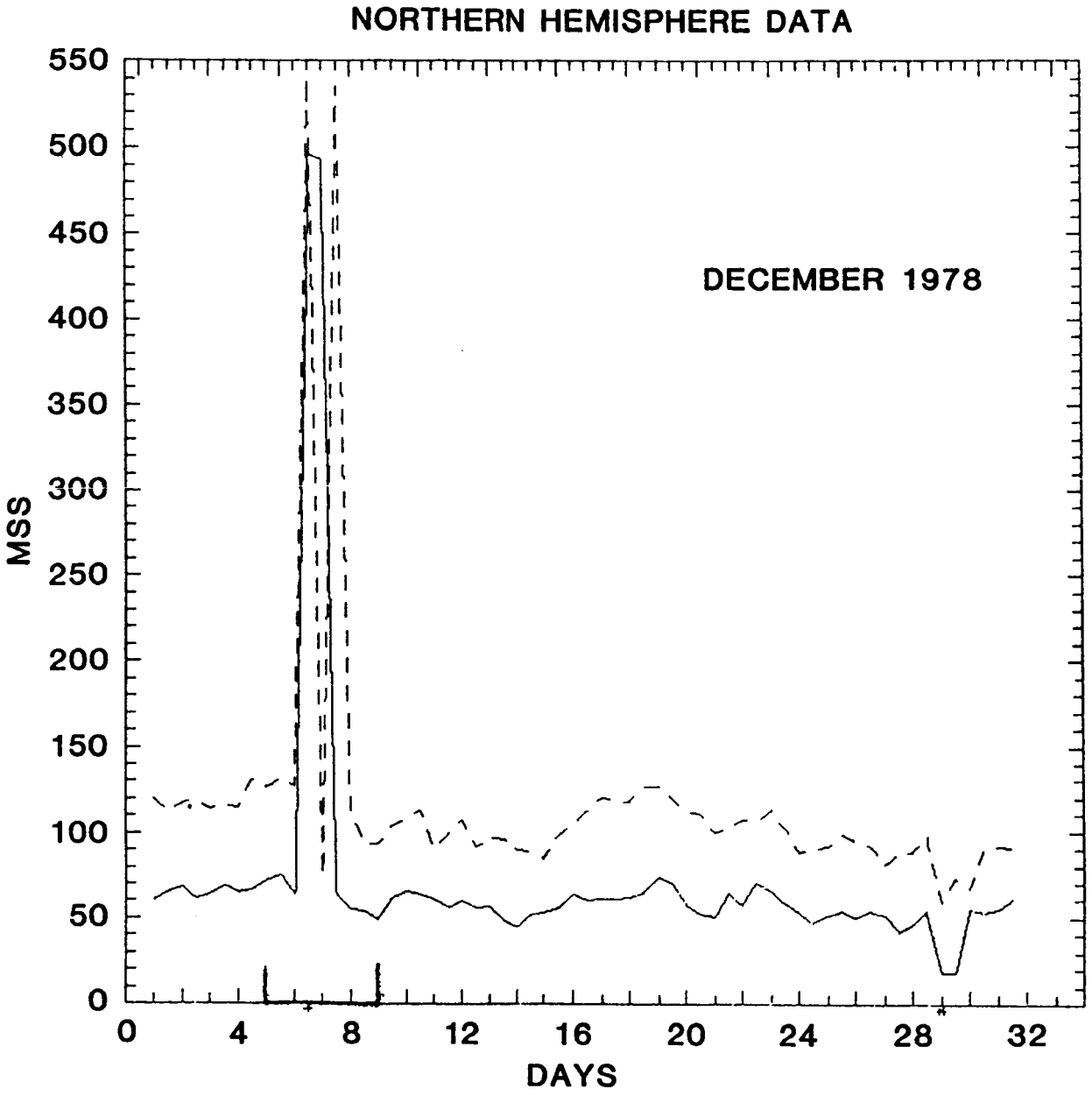


Figure - 4d: 200 mb. heights and wind vectors for 6/13/81 0Z demonstrating the synoptic situation 12 hrs. after the occurrence of highly ageostrophic winds (boxed in region).



MSS Values For 500 mb. Time Differenced Wind Components For Dec. 1978

\+ Indicates Larger Value
* Indicates Geostrophic Winds

_____ 12-Hour Difference
------- 24-Hour Difference

Figure - 5a: Weighted mean sum of squares values for 500 mb. time differenced wind components indicating large wind vectors on 12/6/78 12Z.

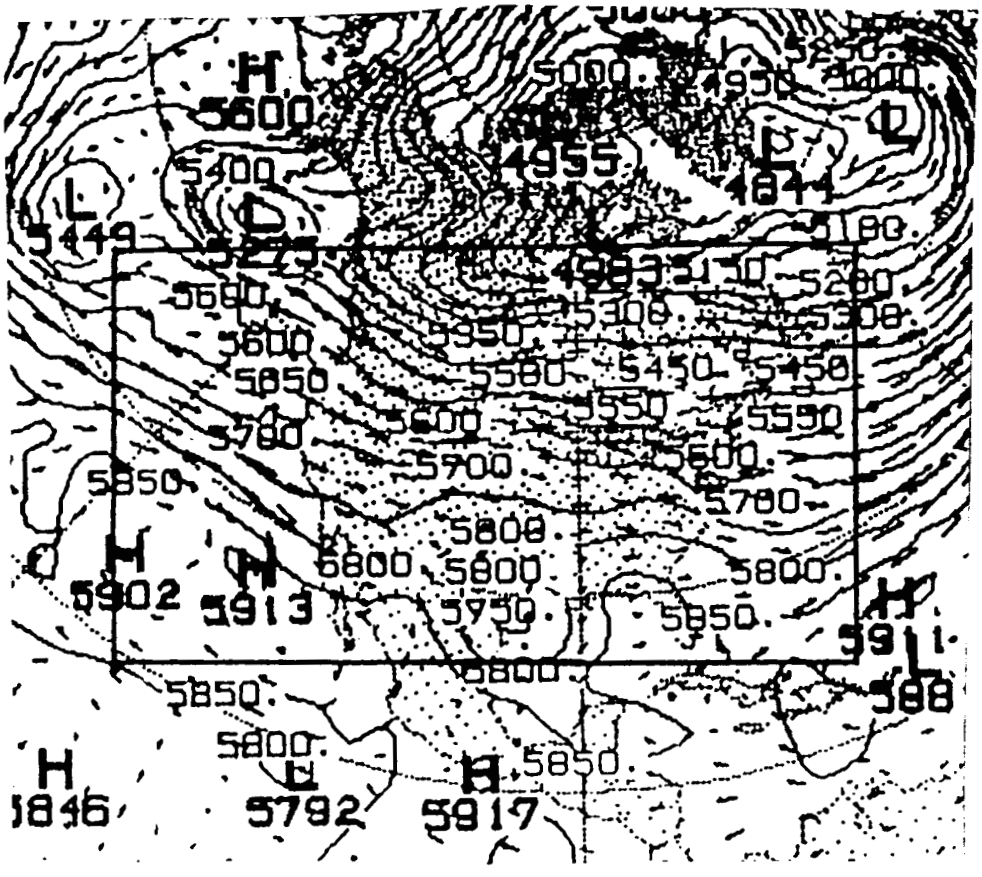


Figure - 5b: 500 mb. heights and wind vectors for 12/6/78 0z demonstrating the synoptic situation 12 hrs. before the occurrence of unrealistic winds (boxed in region).

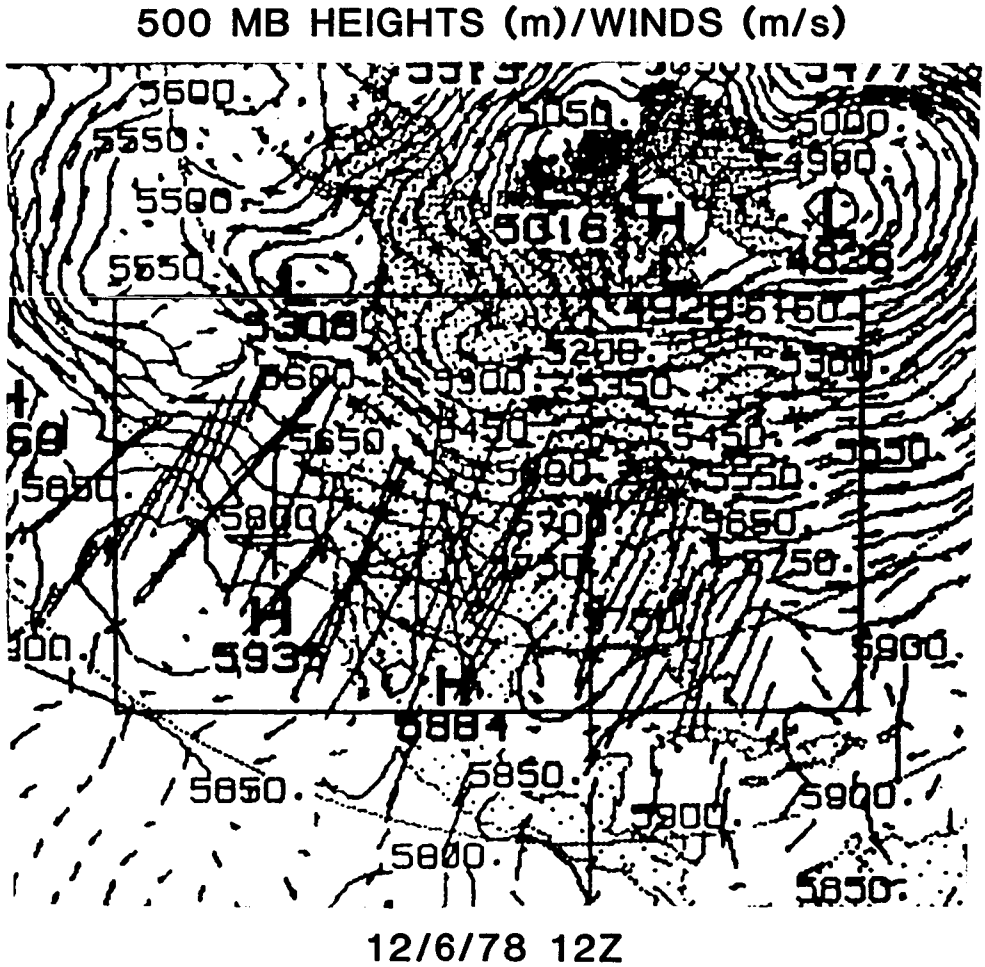


Figure - 5c: 500 mb. heights and wind vectors for 12/6/78 12z demonstrating the occurrence of unrealistic winds (boxed in region).

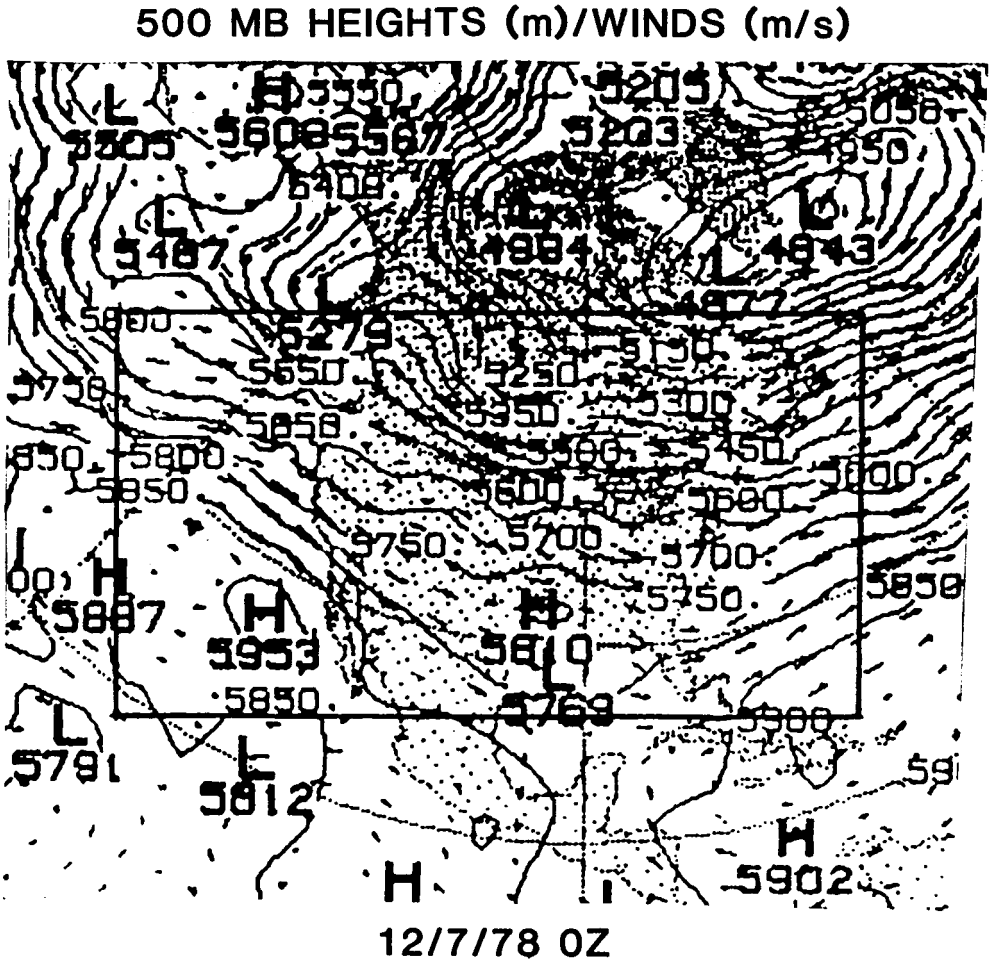
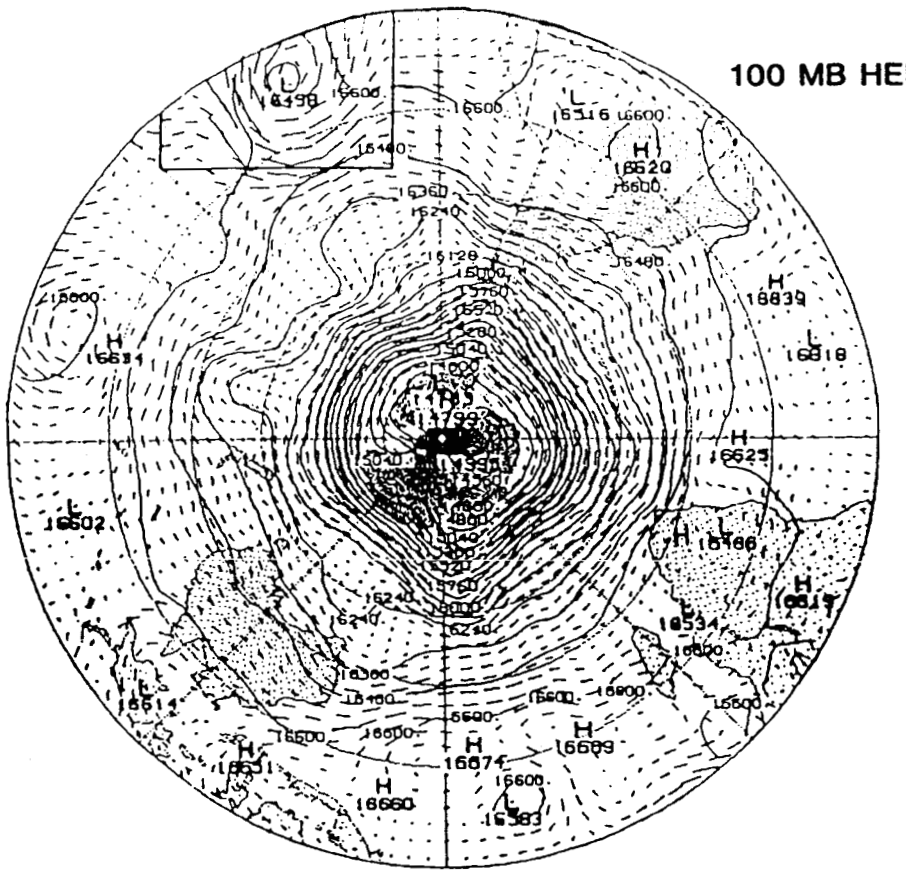
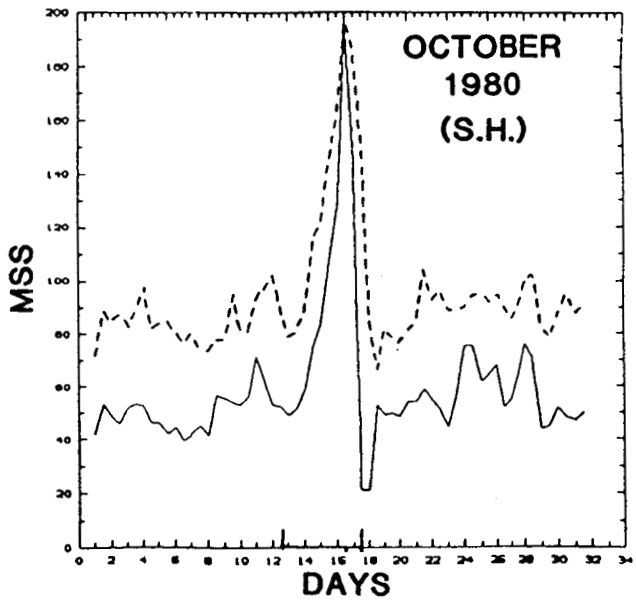


Figure - 5d: 500 mb. heights and wind vectors for 12/7/78 0z demonstrating the synoptic situation 12 hrs. after the occurrence of unrealistic winds (boxed in region).





(b)

MSS Values For 100 mb. Time Differenced Wind Components For October of 1980.

\+ Indicates Larger Value
* Indicates Geostrophic Winds
_____ 12 Hour Differences
----- 24 Hour Differences

Figure - 6: 100 mb. heights/wind vectors (a) and the corresponding weighted mean sum of squares time differences for 100 mb. winds during October of 1980 (b) indicating a perturbation in the wind field (boxed in region). Winds can be observed to be rotating in the wrong direction around low with respect to hemispheric location.

APPENDIX A

APPENDIX A ORIGINAL UNPACKED NCAR TAPES

NMC 1978 - 1982 GLOBAL WINDS, HGHT ,SLP AND TEMP UNPACKED DATASET

PROGRAMMER: PETER K. WU

DATE CREATED: FEBRUARY 84

DESCRIPTION OF DATASET:

Input Source A total of 20 packed tapes were obtained involving fields of sea-level pressure, temperature, heights, and winds (U and V components).

(A) Time Domain A five year span with twice daily (00Z and 12Z) data from January 1st., 1978 to December 31st., 1982.

(B) Space Format 2.5 X 2.5 lat./long. grid records of Northern and Southern Hemisphere (separated) data. Eight vertical pressure levels exist from 50mb. to 850mb..

Output Product A total of 25 unpacked tapes were produced with each single field being unpacked and extracted at each pressure level.

Comment Sea level pressure data starts July 20, 1978 12z and goes to Dec. 31, 1982 12z.

DATASET FORMAT

	Unpacked Height, Temp., and SLP Tapes	Unpacked Wind Tapes
RECFM	FB	FB
LRECL	22440	21470
BLOCK	22440	21470
UNIT	T6250	T6250
LABEL	SL	SL
DEN	6250	6250

DESCRIPTION OF RECORD SET

For Heights, Temps., And SLP

```
C
C-----For each time on tape...
C
 10   CONTINUE
C
      READ(8,1000,END=999) NSHEM,NYEAR,NMON,NDAY,NHR,DATA
C
C-----Go back and read next time on tape.
C
      GO TO 10
C
 1000 FORMAT(25(255A4))
```

For Winds

```
C
C-----For each time on tape...
C
 10   CONTINUE
C
      READ(8,1000,END=999) NSHEM,NYEAR,NMON,NDAY,NHR,IU,IV
C
C-----Go back and read next time on tape.
C
      GO TO 10
C
 1000 FORMAT(42(255A2),50A2)
```

VARIABLE DESCRIPTION

For Height, Temp., and SLP Data

```
INTEGER*4      NYEAR ---> year (YY)
 ..    ..      NMON  ---> month (MM)
 ..    ..      NDAY  ---> day (DD)
 ..    ..      NHR   ---> hour (HH)
 ..    ..      NSHEM ---> Index for hemispheres:

                          29 ---> Northern
                          30 ---> Southern
```

For Wind Data

(Same except all variables are INTEGER*2)

All Height, Temp., And SLP Data Is Stored In DATA(I,J) In REAL*4

SLP(145,37) Mean sea-level pressure (MB.)
Z(145,37) Geopotential height (Meters)
T(145,37) Temperature (K)

All Wind Data Is Stored In IU(I,J) And IV(I,J) In Integer*2

IU(145,37) U component of wind (M/SEC.)
IV(145,37) V component of wind (M/SEC.)

(Must divide by 128.0 to get actual wind speed)

For Northern Hemisphere Records

J = 1,2,...,37 <---> Latitude = 0N,2.5N,...,90N
I = 1,2,...,145 <---> Longitude = 0E,2.5E,...,177.5W

For Southern Hemisphere Records

J = 1,2,...,37 <---> Latitude = -90S,-87.5S,...,0S
I = 1,2,...,145 <---> Longitude = 0E,2.5E,...,177.5W

List Of Unpacked NCAR Tapes

Devtype	Volser	Dataset Name
3400-6	121434	F401.NCAR.HGHT100.UNPACK.COPY
3400-6	119710	F401.NCAR.HGHT100.UNPACK.TAPE
3400-6	121448	F401.NCAR.HGHT200.UNPACK.COPY
3400-6	119886	F401.NCAR.HGHT200.UNPACK.TAPE
3400-6	121446	F401.NCAR.HGHT300.UNPACK.COPY
3400-6	120136	F401.NCAR.HGHT300.UNPACK.TAPE
3400-6	121430	F401.NCAR.HGHT50.UNPACK.COPY
3400-6	120139	F401.NCAR.HGHT50.UNPACK.TAPE
3400-6	121436	F401.NCAR.HGHT500.UNPACK.COPY
3400-6	119889	F401.NCAR.HGHT500.UNPACK.TAPE
3400-6	121431	F401.NCAR.HGHT70.UNPACK.COPY
3400-6	120143	F401.NCAR.HGHT70.UNPACK.TAPE
3400-6	121628	F401.NCAR.HGHT700.UNPACK.COPY
3400-5	121615	F401.NCAR.HGHT850.UNPACK.COPY
3400-6	120147	F401.NCAR.HGHT850.UNPACK.TAPE
3400-6	121435	F401.NCAR.SLP.UNPACK.COPY
3400-6	119888	F401.NCAR.SLP.UNPACK.TAPE
3400-6	121453	F401.NCAR.TEMP100.UNPACK.COPY
3400-6	119711	F401.NCAR.TEMP100.UNPACK.TAPE
3400-6	121627	F401.NCAR.TEMP200.UNPACK.COPY
3400-6	119885	F401.NCAR.TEMP200.UNPACK.TAPE
3400-6	121445	F401.NCAR.TEMP300.UNPACK.COPY
3400-6	120102	F401.NCAR.TEMP300.UNPACK.TAPE
3400-6	121432	F401.NCAR.TEMP50.UNPACK.COPY
3400-6	121018	F401.NCAR.TEMP50.UNPACK.TAPE
3400-6	121444	F401.NCAR.TEMP500.UNPACK.COPY
3400-6	121039	F401.NCAR.TEMP500.UNPACK.TAPE
3400-6	121433	F401.NCAR.TEMP70.UNPACK.COPY
3400-6	120144	F401.NCAR.TEMP70.UNPACK.TAPE
3400-6	121440	F401.NCAR.TEMP700.UNPACK.COPY
3400-6	120062	F401.NCAR.TEMP700.UNPACK.TAPE
3400-6	121438	F401.NCAR.TEMP850.UNPACK.COPY
3400-6	120148	F401.NCAR.TEMP850.UNPACK.TAPE
3400-6	121279	F401.NCAR.UV100.UNPACK.COPY
3400-6	123057	F401.NCAR.UV100.UNPACK.TAP
3400-6	121250	F401.NCAR.UV200.UNPACK.COPY
3400-6	121255	F401.NCAR.UV300.UNPACK.COPY
3400-6	122859	F401.NCAR.UV300.UNPACK.TAP
3400-6	121278	F401.NCAR.UV50.UNPACK.COPY
3400-6	123596	F401.NCAR.UV50.UNPACK.TAP
3400-6	120137	F401.NCAR.UV500.UNPACK.COPY
3400-6	122236	F401.NCAR.UV500.UNPACK.TAP
3400-6	121257	F401.NCAR.UV70.UNPACK.COPY
3400-6	123125	F401.NCAR.UV70.UNPACK.TAP
3400-6	120138	F401.NCAR.UV700.UNPACK.COPY
3400-6	122237	F401.NCAR.UV700.UNPACK.TAP
3400-6	120103	F401.NCAR.UV850.UNPACK.COPY
3400-6	123102	F401.NCAR.UV850.UNPACK.TAP

APPENDIX B

APPENDIX B (SECTION I): FINAL TAPES IN CLIMATE FORMAT

DESCRIPTION OF DATASET

These tapes contain data every 12 hrs. on a 4 X 5 degree grid starting Jan. 1, 1978 0Z and ending Dec. 31, 1982 12Z for SLP, heights, temperatures, and winds. The latter three quantities exist for six pressure levels: 850, 700, 500, 300, 200, and 100 millibar levels. SLP data does not exist until July 20, 1978 12Z. Until then, all SLP arrays are zeroed out.

DATASET FORMAT

```
RECFM : VBS
LRECL : 32756
BLOCK : 32760
LABEL : SL
DEN   : 6250
```

DESCRIPTION OF RECORD SET

```
C
C-----For each time on tape...
C
 10   CONTINUE
C
C-----Read in date array and SLP data.
C
      READ(8,END=999) NCHIP,NCODES,SLP
C
C-----Read in height, temp., and wind data for each level starting
C-----at the 850 mb. level and going up to the 100 mb. level.
C
      DO 5 ILEV = 1,6
C
         READ(8) NCODZT,NCODEW,GEOPHT,TEMP,KU,KV
C
 5    CONTINUE
C
C-----Go back to read next time on tape.
C
      GO TO 10
```

VARIABLE DESCRIPTION

1) Geopht(72,46) = Real*4 Geopotential Height Array (Meters).

(4.0 x 5.0 Grid Resolution)

I = 1,...,72 ---> 0 deg. E,...,-5 deg. E Lon.
J = 1,...,46 ---> Spole,...,Npole Lat.

2) Ku(72,46) = Integer*2 Global Data Array Containing Packed U Wind Component (meters/sec multiplied by 128.0).

(4.0 x 5.0 Grid Resolution)

I = 1,...,72 ---> 0 deg. E,...,-5 deg. E Lon.
J = 1,...,46 ---> Spole,...,Npole Lat.

3) Kv(72,46) = Integer*2 Global Data Array Containing Packed V Wind Component (meters/sec multiplied by 128.0).

(4.0 x 5.0 Grid Resolution)

I = 1,...,72 ---> 0 deg. E,...,-5 deg. E Lon.
J = 1,...,46 ---> Spole,...,Npole Lat.

4) Nchip(4) = Integer*4 Date Array.

a) Nchip(1) = Year (YY)
b) Nchip(2) = Month (MM)
c) Nchip(3) = Day (DD)
d) Nchip(4) = Hour (HH)

5) Ncodes,Ncodzt,Ncodew = Integer*4 Data Description Variables.

a) Ncodes = Ncode (code for SLP)
b) Ncodzt = Ncode (code for heights and temps)
c) Ncodew = Ncode (code for winds)

where

Ncode = 0 if original data.
= 1 if data replaced with seasonal climatology.
= 2 if data replaced with GLAS Analysis data.
= 3 if data replaced with geostrophic winds based on seasonal climatology.
= 4 if data replaced with geostrophic winds based on GLAS Analysis data.

= 5 if data replaced with geostrophic winds based on interpolated data.
= 6 if data replaced with geostrophic winds based on original height data.
= -99 if data consists of all zeroes (missing SLP data).
= 99 if data interpolated in time.

6) SLP(72,46) = Real*4 Sea Level Pressure Array (mb.).

(4.0 x 5.0 Grid Resolution)

I = 1,...,72 ---> 0 deg. E,...,-5 deg. E Lon.
J = 1,...,46 ---> Spole,...,Npole Lat.

7) Temp(72,46) = Real*4 Temperature Array (Degrees Kelvin).

(4.0 x 5.0 Grid Resolution)

I = 1,...,72 ---> 0 deg. E,...,-5 deg. E Lon.
J = 1,...,46 ---> Spole,...,Npole Lat.

List Of Final Tapes In Climate Format

Devtype	Volser	Dataset Name
3400-5	105448	F401.NCAR.CORR.TDAILY.DATA.S780101.E780630
3400-5	110138	F401.NCAR.CORR.TDAILY.DATA.S780701.E781231
3400-5	102909	F401.NCAR.CORR.TDAILY.DATA.S790101.E790630
3400-5	124156	F401.NCAR.CORR.TDAILY.DATA.S790701.E791231
3400-5	113224	F401.NCAR.CORR.TDAILY.DATA.S800101.E800630
3400-5	102459	F401.NCAR.CORR.TDAILY.DATA.S800701.E801231
3400-5	105587	F401.NCAR.CORR.TDAILY.DATA.S810101.E810630
3400-5	117480	F401.NCAR.CORR.TDAILY.DATA.S810701.E811231
3400-5	130984	F401.NCAR.CORR.TDAILY.DATA.S820101.E820630
3400-5	132949	F401.NCAR.CORR.TDAILY.DATA.S820701.E821231

APPENDIX B (SECTION II): FINAL TAPES IN V8MANDATORY FORMAT

DESCRIPTION OF DATASET

These tapes contain data every 12 hrs. on a 4 X 5 degree grid starting Jan. 1, 1978 0Z and ending Dec. 31, 1982 12Z for SLP, heights, temperatures, and winds. The latter three quantities exist for six pressure levels: 850, 700, 500, 300, 200, and 100 millibar levels. SLP data does not exist until July 20, 1978 12Z. Until then, all SLP arrays are zeroed out.

DATASET FORMAT

RECFM : VBS
LRECL : 19065
BLOCK : 19069
LABEL : SL
DEN : 6250

DESCRIPTION OF RECORD SET

(See Documentation On Version 8 Mandatory Format)

VARIABLE DESCRIPTION

Variables used to represent the origin of data for each time are represented in the "IC" array which is found in the common block, "ICNTRL". To access this array, you must include the following code:

```
      INTEGER IC(200)
C
C-----Include common block.
C
      COMMON /ICNTRL/ IC
```

The following will describe the pertinent array elements:

a) IC(196) = Ncode (code for SLP)
b) IC(197) = Ncode (code for 850 to 200 mb. winds)
c) IC(198) = Ncode (code for 100 mb. winds)
d) IC(199) = Ncode (code for 850 to 200 mb. heights and temps)
e) IC(200) = Ncode (code for 100 mb. heights and temps)

where

Ncode	= 0	if original data.
	= 1	if data replaced with seasonal climatology.
	= 2	if data replaced with GLAS analysis data.
	= 3	if data replaced with geostrophic winds based on seasonal climatology.
	= 4	if data replaced with geostrophic winds based on GLAS analysis data.
	= 5	if data replaced with geostrophic winds based on interpolated data.
	= 6	if data replaced with geostrophic winds based on original height data.
	= -99	if data consists of all zeroes (missing SLP data).
	= 99	if data is time interpolated.

List Of Final Tapes In V8mandatory Format

Devtype	Volser	Dataset Name
3400-5	114649	F400.EGANLM01.S780101.E780630
3400-5	129077	F400.EGANLM02.S780701.E781231
3400-5	101478	F400.EGANLM03.S790101.E790630
3400-5	124189	F400.EGANLM04.S790701.E791231
3400-5	118454	F400.EGANLM05.S800101.E800630
3400-5	104700	F400.EGANLM06.S800701.E801231
3400-5	105168	F400.EGANLM07.S810101.E810630
3400-5	118976	F400.EGANLM08.S810701.E811231
3400-5	104239	F400.EGANLM09.S820101.E820630
3400-5	132951	F400.EGANLM10.S820701.E821231

APPENDIX C

APPENDIX C (SECTION I) CORRECTED DATA FOR SLP

Interpolated Data (SLP)

9/14/78	12Z	7/31/80	0Z	6/14/81	0Z	2/24/82	0Z
10/ 6/78	12Z	8/ 5/80	12Z	6/17/81	12Z	2/25/82	0Z
11/ 1/78	12Z	8/ 7/80	0Z	7/ 7/81	0Z	2/26/82	0Z
11/13/78	12Z	8/ 7/80	12Z	7/25/81	12Z	2/27/82	12Z
12/29/78	0Z	8/ 8/80	0Z	7/29/81	0Z	3/ 7/82	12Z
12/31/78	12Z	8/10/80	12Z	8/14/81	0Z	3/13/82	12Z
1/17/79	0Z	8/11/80	12Z	8/17/81	0Z	3/14/82	0Z
1/24/79	12Z	8/13/80	0Z	8/18/81	0Z	3/22/82	12Z
2/28/79	0Z	8/14/80	0Z	8/19/81	0Z	3/29/82	0Z
3/15/79	12Z	9/ 2/80	12Z	8/30/81	0Z	3/31/82	0Z
3/16/79	0Z	9/ 4/80	0Z	8/30/81	12Z	4/ 5/82	0Z
3/20/79	0Z	9/10/80	0Z	8/31/81	0Z	5/11/82	12Z
4/ 9/79	0Z	9/16/80	12Z	8/31/81	12Z	5/13/82	12Z
4/12/79	12Z	9/23/80	12Z	9/ 4/81	0Z	5/22/82	12Z
5/ 7/79	12Z	9/27/80	12Z	9/ 4/81	12Z	6/ 5/82	0Z
5/11/79	12Z	10/17/80	12Z	9/ 5/81	0Z	6/27/82	12Z
6/ 6/79	12Z	11/13/80	12Z	9/ 5/81	12Z	6/30/82	0Z
6/14/79	12Z	12/10/80	12Z	9/ 9/81	0Z	6/30/82	12Z
6/15/79	0Z	12/18/80	0Z	9/13/81	0Z	7/ 1/82	0Z
6/15/79	12Z	12/25/80	0Z	9/19/81	0Z	7/ 1/82	12Z
6/18/79	0Z	12/25/80	12Z	9/20/81	0Z	7/16/82	0Z
6/19/79	0Z	12/26/80	0Z	9/29/81	0Z	7/16/82	12Z
7/10/79	12Z	12/26/80	12Z	10/ 1/81	12Z	7/17/82	0Z
8/17/79	12Z	12/30/80	12Z	10/ 4/81	0Z	7/17/82	12Z
8/28/79	0Z	12/31/80	0Z	10/ 4/81	12Z	7/27/82	12Z
8/31/79	12Z	12/31/80	12Z	10/ 5/81	0Z	7/28/82	0Z
9/ 3/79	0Z	1/ 1/81	0Z	10/ 5/81	12Z	7/28/82	12Z
9/16/79	0Z	1/ 9/81	12Z	10/ 9/81	0Z	7/29/82	12Z
9/17/79	12Z	1/21/81	12Z	10/ 9/81	12Z	7/30/82	0Z
9/19/79	12Z	1/27/81	12Z	10/10/81	0Z	7/30/82	12Z
9/25/79	0Z	2/ 1/81	0Z	10/10/81	12Z	8/ 5/82	0Z
9/27/79	12Z	2/ 1/81	12Z	10/28/81	0Z	8/10/82	0Z
9/28/79	0Z	2/ 2/81	0Z	10/29/81	0Z	8/10/82	12Z
10/29/79	0Z	2/ 2/81	12Z	11/ 5/81	12Z	8/11/82	0Z
11/ 1/79	0Z	2/ 6/81	0Z	12/10/81	0Z	8/12/82	12Z
12/21/79	12Z	2/ 6/81	12Z	12/16/81	0Z	8/13/82	12Z
12/31/79	12Z	2/ 7/81	0Z	12/16/81	12Z	8/15/82	0Z
1/31/80	0Z	2/ 7/81	12Z	12/17/81	0Z	8/15/82	12Z
1/31/80	12Z	2/14/81	0Z	12/17/81	12Z	8/16/82	0Z
2/ 1/80	12Z	3/14/81	0Z	12/18/81	0Z	8/17/82	12Z
3/20/80	12Z	3/14/81	12Z	12/18/81	12Z	8/18/82	0Z
3/30/80	12Z	3/15/81	0Z	12/19/81	0Z	8/21/82	12Z
4/ 1/80	12Z	3/19/81	0Z	12/19/81	12Z	8/23/82	0Z
4/12/80	12Z	3/20/81	0Z	12/28/81	12Z	8/30/82	0Z
5/ 2/80	12Z	3/20/81	12Z	1/ 5/82	0Z	9/ 5/82	0Z
5/ 7/80	0Z	3/24/81	0Z	1/11/82	0Z	9/ 8/82	0Z
5/21/80	12Z	4/ 1/81	12Z	1/11/82	12Z	9/23/82	0Z

5/31/80 0Z	4/ 2/81 0Z	1/13/82 12Z	10/ 2/82 0Z
6/ 3/80 12Z	4/22/81 12Z	1/16/82 0Z	10/ 3/82 0Z
6/ 5/80 0Z	5/16/81 12Z	1/17/82 12Z	10/ 7/82 0Z
6/ 5/80 12Z	6/ 6/81 12Z	1/18/82 12Z	10/ 7/82 12Z
6/28/80 0Z	6/10/81 12Z	1/22/82 0Z	10/27/82 0Z
6/29/80 0Z	6/11/81 0Z	1/25/82 0Z	11/ 7/82 12Z
7/12/80 0Z	6/12/81 12Z	1/30/82 12Z	11/12/82 12Z
7/17/80 0Z	6/13/81 0Z	2/23/82 0Z	11/17/82 12Z
7/17/80 12Z	6/13/81 12Z	2/23/82 12Z	11/18/82 0Z
			11/24/82 12Z
			12/ 2/82 12Z
			12/31/82 0Z

Data Replaced With Climatology (SLP)

2/ 3/81 0Z	2/ 5/81 0Z	9/ 2/81 0Z	10/ 6/81 0Z
2/ 3/81 12Z	2/ 5/81 12Z	9/ 2/81 12Z	10/ 6/81 12Z
2/ 4/81 0Z	9/ 1/81 0Z	9/ 3/81 0Z	10/ 7/81 0Z
2/ 4/81 12Z	9/ 1/81 12Z	9/ 3/81 12Z	10/ 7/81 12Z
			10/ 8/81 0Z
			10/ 8/81 12Z

Data Replaced With Glas Analysis (SLP)

7/ 2/82 0Z	7/ 5/82 12Z	7/ 9/82 0Z	7/12/82 12Z
7/ 2/82 12Z	7/ 6/82 0Z	7/ 9/82 12Z	7/13/82 0Z
7/ 3/82 0Z	7/ 6/82 12Z	7/10/82 0Z	7/13/82 12Z
7/ 3/82 12Z	7/ 7/82 0Z	7/10/82 12Z	7/14/82 0Z
7/ 4/82 0Z	7/ 7/82 12Z	7/11/82 0Z	7/14/82 12Z
7/ 4/82 12Z	7/ 8/82 0Z	7/11/82 12Z	7/15/82 0Z
7/ 5/82 0Z	7/ 8/82 12Z	7/12/82 0Z	7/15/82 12Z

APPENDIX C (SECTION II) CORRECTED DATA FOR HEIGHTS AND TEMPS.

Interpolated Data (Heights and Temps.)

(850 To 200mb. Level)

2/ 4/78 12Z	3/30/80 12Z	2/ 7/81 0Z	1/13/82 12Z
2/ 5/78 0Z	4/ 1/80 12Z	2/ 7/81 12Z	1/16/82 0Z
3/14/78 0Z	4/ 8/80 0Z	2/14/81 0Z	1/17/82 12Z
3/24/78 12Z	4/ 8/80 12Z	3/14/81 0Z	1/18/82 12Z
3/26/78 0Z	4/12/80 12Z	3/15/81 0Z	1/22/82 0Z
4/13/78 12Z	5/ 2/80 12Z	3/19/81 0Z	1/25/82 0Z
4/19/78 0Z	5/ 7/80 0Z	3/20/81 0Z	1/30/82 12Z
4/22/78 0Z	5/21/80 12Z	3/20/81 12Z	2/23/82 0Z
5/ 4/78 0Z	5/23/80 0Z	3/24/81 0Z	2/23/82 12Z
5/13/78 0Z	5/27/80 0Z	4/ 1/81 12Z	2/24/82 0Z
5/14/78 0Z	5/27/80 12Z	4/ 2/81 0Z	2/25/82 0Z
5/22/78 12Z	5/28/80 0Z	4/22/81 12Z	2/26/82 0Z
6/10/78 0Z	5/28/80 12Z	5/16/81 12Z	2/27/82 12Z
7/13/78 12Z	6/ 4/80 0Z	6/ 6/81 12Z	3/ 7/82 12Z
7/14/78 0Z	6/ 4/80 12Z	6/10/81 12Z	3/13/82 12Z
9/14/78 12Z	6/ 5/80 0Z	6/11/81 0Z	3/14/82 0Z
10/ 6/78 12Z	6/ 5/80 12Z	6/12/81 12Z	3/22/82 12Z
11/ 1/78 12Z	6/21/80 12Z	6/13/81 0Z	3/29/82 0Z
11/13/78 12Z	6/26/80 0Z	6/13/81 12Z	3/31/82 0Z
12/29/78 0Z	6/28/80 0Z	6/14/81 0Z	4/ 5/82 0Z
1/17/79 0Z	6/29/80 0Z	6/17/81 12Z	5/11/82 12Z
1/24/79 12Z	7/ 5/80 12Z	7/ 7/81 0Z	5/13/82 12Z
2/28/79 0Z	7/12/80 0Z	7/25/81 12Z	5/22/82 12Z
3/15/79 12Z	7/17/80 0Z	7/29/81 0Z	6/ 5/82 0Z
3/16/79 0Z	7/17/80 12Z	8/14/81 0Z	6/27/82 12Z
3/20/79 0Z	7/31/80 0Z	8/17/81 0Z	6/30/82 0Z
4/ 5/79 12Z	8/ 5/80 12Z	8/18/81 0Z	6/30/82 12Z
4/ 6/79 0Z	8/ 7/80 0Z	8/19/81 0Z	7/ 1/82 0Z
4/ 6/79 12Z	8/ 7/80 12Z	8/30/81 0Z	7/ 1/82 12Z
4/ 9/79 0Z	8/ 8/80 0Z	8/30/81 12Z	7/16/82 0Z
4/12/79 12Z	8/10/80 12Z	8/31/81 0Z	7/16/82 12Z
5/ 7/79 12Z	8/11/80 12Z	8/31/81 12Z	7/17/82 0Z
5/11/79 12Z	8/13/80 0Z	9/ 4/81 0Z	7/17/82 12Z
6/ 6/79 12Z	8/14/80 0Z	9/ 4/81 12Z	7/27/82 12Z
6/14/79 12Z	8/30/80 12Z	9/ 5/81 0Z	7/28/82 0Z
6/15/79 0Z	9/ 2/80 12Z	9/ 5/81 12Z	7/28/82 12Z
6/15/79 12Z	9/ 4/80 0Z	9/ 9/81 0Z	7/29/82 12Z
6/18/79 0Z	9/10/80 0Z	9/13/81 0Z	7/30/82 0Z
6/19/79 0Z	9/16/80 12Z	9/19/81 0Z	7/30/82 12Z
7/10/79 12Z	9/23/80 12Z	9/20/81 0Z	8/ 5/82 0Z
7/11/79 12Z	9/27/80 12Z	9/29/81 0Z	8/10/82 0Z
7/12/79 0Z	10/15/80 0Z	10/ 1/81 12Z	8/10/82 12Z
7/12/79 12Z	10/15/80 12Z	10/ 4/81 0Z	8/11/82 0Z
7/13/79 0Z	10/16/80 0Z	10/ 4/81 12Z	8/12/82 12Z
7/13/79 12Z	10/16/80 12Z	10/ 5/81 0Z	8/13/82 12Z

7/24/79 12Z	10/17/80 12Z	10/ 5/81 12Z	8/15/82 0Z
8/23/79 12Z	11/13/80 12Z	10/ 9/81 0Z	8/15/82 12Z
8/28/79 0Z	12/10/80 12Z	10/ 9/81 12Z	8/16/82 0Z
8/31/79 12Z	12/18/80 0Z	10/10/81 0Z	8/17/82 12Z
9/ 3/79 0Z	12/25/80 0Z	10/10/81 12Z	8/18/82 0Z
9/16/79 0Z	12/25/80 12Z	10/28/81 0Z	8/21/82 12Z
9/17/79 12Z	12/26/80 0Z	10/29/81 0Z	8/23/82 0Z
9/19/79 12Z	12/26/80 12Z	11/ 5/81 12Z	8/30/82 0Z
9/25/79 0Z	12/30/80 12Z	12/10/81 0Z	9/ 5/82 0Z
9/27/79 12Z	12/31/80 0Z	12/16/81 0Z	9/ 8/82 0Z
9/28/79 0Z	12/31/80 12Z	12/16/81 12Z	9/23/82 0Z
10/29/79 0Z	1/ 1/81 0Z	12/17/81 0Z	10/ 2/82 0Z
11/ 1/79 0Z	1/ 9/81 12Z	12/17/81 12Z	10/ 3/82 0Z
12/ 1/79 12Z	1/21/81 12Z	12/18/81 0Z	10/ 7/82 0Z
12/21/79 12Z	1/27/81 12Z	12/18/81 12Z	10/ 7/82 12Z
12/31/79 12Z	2/ 1/81 0Z	12/19/81 0Z	10/27/82 0Z
1/16/80 0Z	2/ 1/81 12Z	12/19/81 12Z	11/ 7/82 0Z
1/31/80 0Z	2/ 2/81 0Z	12/28/81 12Z	11/ 7/82 12Z
1/31/80 12Z	2/ 2/81 12Z	1/ 5/82 0Z	11/12/82 12Z
2/ 1/80 12Z	2/ 6/81 0Z	1/11/82 0Z	11/17/82 12Z
3/20/80 12Z	2/ 6/81 12Z	1/11/82 12Z	11/18/82 0Z
			11/24/82 12Z
			12/ 2/82 12Z
			12/31/82 0Z

100mb. Level

(includes all of the above plus the following)

1/27/79 0Z	6/12/80 12Z	9/ 3/80 12Z	10/14/80 12Z
10/ 1/79 12Z	6/25/80 12Z	9/21/80 12Z	10/27/80 12Z
10/18/79 12Z	8/27/80 0Z	9/22/80 0Z	10/28/80 0Z
3/14/80 0Z	9/ 3/80 0Z	10/14/80 0Z	1/ 7/81 0Z
			1/ 7/81 12Z

Data Replaced With Climatology (Heights and Temps.)

5/29/80 0Z	6/ 1/80 12Z	2/ 4/81 0Z	9/ 2/81 12Z
5/29/80 12Z	6/ 2/80 0Z	2/ 4/81 12Z	9/ 3/81 0Z
5/30/80 0Z	6/ 2/80 12Z	2/ 5/81 0Z	9/ 3/81 12Z
5/30/80 12Z	6/ 3/80 0Z	2/ 5/81 12Z	10/ 6/81 0Z
5/31/80 0Z	6/ 3/80 12Z	9/ 1/81 0Z	10/ 6/81 12Z
5/31/80 12Z	2/ 3/81 0Z	9/ 1/81 12Z	10/ 7/81 0Z
6/ 1/80 0Z	2/ 3/81 12Z	9/ 2/81 0Z	10/ 7/81 12Z
			10/ 8/81 0Z
			10/ 8/81 12Z

Data Replaced With Glas Analysis (Heights and Temps.)

7/ 2/82 0Z	7/ 5/82 12Z	7/ 9/82 0Z	7/12/82 12Z
7/ 2/82 12Z	7/ 6/82 0Z	7/ 9/82 12Z	7/13/82 0Z
7/ 3/82 0Z	7/ 6/82 12Z	7/10/82 0Z	7/13/82 12Z
7/ 3/82 12Z	7/ 7/82 0Z	7/10/82 12Z	7/14/82 0Z
7/ 4/82 0Z	7/ 7/82 12Z	7/11/82 0Z	7/14/82 12Z
7/ 4/82 12Z	7/ 8/82 0Z	7/11/82 12Z	7/15/82 0Z
7/ 5/82 0Z	7/ 8/82 12Z	7/12/82 0Z	7/15/82 12Z

APPENDIX C (SECTION III) CORRECTED DATA FOR WINDS

Data Replaced With Geostrophic Winds Based On Interpolated Heights

(850 to 200mb. Levels)

2/ 4/78 12Z	3/30/80 12Z	2/ 7/81 0Z	1/13/82 12Z
2/ 5/78 0Z	4/ 1/80 12Z	2/ 7/81 12Z	1/16/82 0Z
3/14/78 0Z	4/ 8/80 0Z	2/14/81 0Z	1/17/82 12Z
3/24/78 12Z	4/ 8/80 12Z	3/14/81 0Z	1/18/82 12Z
3/26/78 0Z	4/12/80 12Z	3/15/81 0Z	1/22/82 0Z
4/13/78 12Z	5/ 2/80 12Z	3/19/81 0Z	1/25/82 0Z
4/19/78 0Z	5/ 7/80 0Z	3/20/81 0Z	1/30/82 12Z
4/22/78 0Z	5/21/80 12Z	3/20/81 12Z	2/23/82 0Z
5/ 4/78 0Z	5/23/80 0Z	3/24/81 0Z	2/23/82 12Z
5/13/78 0Z	5/27/80 0Z	4/ 1/81 12Z	2/24/82 0Z
5/14/78 0Z	5/27/80 12Z	4/ 2/81 0Z	2/25/82 0Z
5/22/78 12Z	5/28/80 0Z	4/22/81 12Z	2/26/82 0Z
6/10/78 0Z	5/28/80 12Z	5/16/81 12Z	2/27/82 12Z
7/13/78 12Z	6/ 4/80 0Z	6/ 6/81 12Z	3/ 7/82 12Z
7/14/78 0Z	6/ 4/80 12Z	6/10/81 12Z	3/13/82 12Z
9/14/78 12Z	6/ 5/80 0Z	6/11/81 0Z	3/14/82 0Z
10/ 6/78 12Z	6/ 5/80 12Z	6/12/81 12Z	3/22/82 12Z
11/ 1/78 12Z	6/21/80 12Z	6/13/81 0Z	3/29/82 0Z
11/13/78 12Z	6/26/80 0Z	6/13/81 12Z	3/31/82 0Z
12/29/78 0Z	6/28/80 0Z	6/14/81 0Z	4/ 5/82 0Z
1/17/79 0Z	6/29/80 0Z	6/17/81 12Z	5/11/82 12Z
1/24/79 12Z	7/ 5/80 12Z	7/ 7/81 0Z	5/13/82 12Z
2/28/79 0Z	7/12/80 0Z	7/25/81 12Z	5/22/82 12Z
3/15/79 12Z	7/17/80 0Z	7/29/81 0Z	6/ 5/82 0Z
3/16/79 0Z	7/17/80 12Z	8/14/81 0Z	6/27/82 12Z
3/20/79 0Z	7/31/80 0Z	8/17/81 0Z	6/30/82 0Z
4/ 5/79 12Z	8/ 5/80 12Z	8/18/81 0Z	6/30/82 12Z
4/ 6/79 0Z	8/ 7/80 0Z	8/19/81 0Z	7/ 1/82 0Z
4/ 6/79 12Z	8/ 7/80 12Z	8/30/81 0Z	7/ 1/82 12Z
4/ 9/79 0Z	8/ 8/80 0Z	8/30/81 12Z	7/16/82 0Z
4/12/79 12Z	8/10/80 12Z	8/31/81 0Z	7/16/82 12Z
5/ 7/79 12Z	8/11/80 12Z	8/31/81 12Z	7/17/82 0Z
5/11/79 12Z	8/13/80 0Z	9/ 4/81 0Z	7/17/82 12Z
6/ 6/79 12Z	8/14/80 0Z	9/ 4/81 12Z	7/27/82 12Z
6/14/79 12Z	8/30/80 12Z	9/ 5/81 0Z	7/28/82 0Z
6/15/79 0Z	9/ 2/80 12Z	9/ 5/81 12Z	7/28/82 12Z
6/15/79 12Z	9/ 4/80 0Z	9/ 9/81 0Z	7/29/82 12Z
6/18/79 0Z	9/10/80 0Z	9/13/81 0Z	7/30/82 0Z
6/19/79 0Z	9/16/80 12Z	9/19/81 0Z	7/30/82 12Z
7/10/79 12Z	9/23/80 12Z	9/20/81 0Z	8/ 5/82 0Z
7/11/79 12Z	9/27/80 12Z	9/29/81 0Z	8/10/82 0Z
7/12/79 0Z	10/15/80 0Z	10/ 1/81 12Z	8/10/82 12Z
7/12/79 12Z	10/15/80 12Z	10/ 4/81 0Z	8/11/82 0Z
7/13/79 0Z	10/16/80 0Z	10/ 4/81 12Z	8/12/82 12Z
7/13/79 12Z	10/16/80 12Z	10/ 5/81 0Z	8/13/82 12Z

7/24/79 12Z	10/17/80 12Z	10/ 5/81 12Z	8/15/82 0Z
8/23/79 12Z	11/13/80 12Z	10/ 9/81 0Z	8/15/82 12Z
8/28/79 0Z	12/10/80 12Z	10/ 9/81 12Z	8/16/82 0Z
8/31/79 12Z	12/18/80 0Z	10/10/81 0Z	8/17/82 12Z
9/ 3/79 0Z	12/25/80 0Z	10/10/81 12Z	8/18/82 0Z
9/16/79 0Z	12/25/80 12Z	10/28/81 0Z	8/21/82 12Z
9/17/79 12Z	12/26/80 0Z	10/29/81 0Z	8/23/82 0Z
9/19/79 12Z	12/26/80 12Z	11/ 5/81 12Z	8/30/82 0Z
9/25/79 0Z	12/30/80 12Z	12/10/81 0Z	9/ 5/82 0Z
9/27/79 12Z	12/31/80 0Z	12/16/81 0Z	9/ 8/82 0Z
9/28/79 0Z	12/31/80 12Z	12/16/81 12Z	9/23/82 0Z
10/29/79 0Z	1/ 1/81 0Z	12/17/81 0Z	10/ 2/82 0Z
11/ 1/79 0Z	1/ 9/81 12Z	12/17/81 12Z	10/ 3/82 0Z
12/ 1/79 12Z	1/21/81 12Z	12/18/81 0Z	10/ 7/82 0Z
12/21/79 12Z	1/27/81 12Z	12/18/81 12Z	10/ 7/82 12Z
12/31/79 12Z	2/ 1/81 0Z	12/19/81 0Z	10/27/82 0Z
1/16/80 0Z	2/ 1/81 12Z	12/19/81 12Z	11/ 7/82 0Z
1/31/80 0Z	2/ 2/81 0Z	12/28/81 12Z	11/ 7/82 12Z
1/31/80 12Z	2/ 2/81 12Z	1/ 5/82 0Z	11/12/82 12Z
2/ 1/80 12Z	2/ 6/81 0Z	1/11/82 0Z	11/17/82 12Z
3/20/80 12Z	2/ 6/81 12Z	1/11/82 12Z	11/18/82 0Z
			11/24/82 12Z
			12/ 2/82 12Z
			12/31/82 0Z

100mb. Level

(includes all of the above plus the following)

1/27/79 0Z	6/12/80 12Z	9/ 3/80 12Z	10/14/80 12Z
10/ 1/79 12Z	6/25/80 12Z	9/21/80 12Z	10/27/80 12Z
10/18/79 12Z	8/27/80 0Z	9/22/80 0Z	10/28/80 0Z
3/14/80 0Z	9/ 3/80 0Z	10/14/80 0Z	1/ 7/81 0Z
			1/ 7/81 12Z

Data Replaced With Geostrophic Winds Based On Heights Containing

Seasonal Climatology

5/29/80 0Z	6/ 1/80 12Z	2/ 4/81 0Z	9/ 2/81 12Z
5/29/80 12Z	6/ 2/80 0Z	2/ 4/81 12Z	9/ 3/81 0Z
5/30/80 0Z	6/ 2/80 12Z	2/ 5/81 0Z	9/ 3/81 12Z
5/30/80 12Z	6/ 3/80 0Z	2/ 5/81 12Z	10/ 6/81 0Z
5/31/80 0Z	6/ 3/80 12Z	9/ 1/81 0Z	10/ 6/81 12Z
5/31/80 12Z	2/ 3/81 0Z	9/ 1/81 12Z	10/ 7/81 0Z
6/ 1/80 0Z	2/ 3/81 12Z	9/ 2/81 0Z	10/ 7/81 12Z
			10/ 8/81 0Z
			10/ 8/81 12Z

Data Replaced With Geostrophic Winds Based On Heights Containing

Original Data

12/ 6/78 12Z	12/10/78 12Z	3/ 4/79 12Z	5/20/80 12Z

Data Replaced With GLAS Analysis Data

7/ 2/82 0Z	7/ 5/82 12Z	7/ 9/82 0Z	7/12/82 12Z
7/ 2/82 12Z	7/ 6/82 0Z	7/ 9/82 12Z	7/13/82 0Z
7/ 3/82 0Z	7/ 6/82 12Z	7/10/82 0Z	7/13/82 12Z
7/ 3/82 12Z	7/ 7/82 0Z	7/10/82 12Z	7/14/82 0Z
7/ 4/82 0Z	7/ 7/82 12Z	7/11/82 0Z	7/14/82 12Z
7/ 4/82 12Z	7/ 8/82 0Z	7/11/82 12Z	7/15/82 0Z
7/ 5/82 0Z	7/ 8/82 12Z	7/12/82 0Z	7/15/82 12Z

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15. Supplementary Notes

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16. Abstract

This document describes procedures used in assembling a five year dataset (1978-1982) using NMC Operational Analysis data. These procedures entailed replacing missing and "unacceptable" data in order to arrive at a complete dataset that is continuous in time. In addition, a subjective assessment on the integrity of all data (both preliminary and final) is presented. Documentation on tapes comprising the Five Year Global Dataset is also included.

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